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Addresses.

DISPENSARIES: A GROWING FACTOR IN CURATIVE AND PREVENTIVE MEDICINE.*

BY S. S. GOLDWATER, M.D., NEW YORK,

Commissioner of Health of New York City.

THIS is a topsy-turvy world just now, and it is in keeping with the prevailing confusion that someone should come from New York to Boston to give advice about dispensaries. We New Yorkers in reality are but humble disciples of the Boston masters who hold unchallenged the leadership in progressive dispensary work.

I have been requested to speak about dispensaries as a growing factor in curative and preventive medicine. There are two ways in which dispensaries are a growing factor in this field: they are reaching a constantly increasing number of individuals; and they are becoming more effective through improvements in method which may be traced to the inspiring example of such institutions as the Boston Dispensary.

You have in your hands a pamphlet stating that in 1900 there were 100 dispensaries in the country, against 574 reported by the United States Census Bureau in 1910, and more than 700 at present. These figures show roughly the rate at which dispensary work is growing. Dispensaries are bound to increase in number, and they tend to do so at an accelerating rate.

During the calendar year ending Dec. 31, 1910, 1,953,309 sick persons were treated in institutions in the United States, of which number dispensary patients formed the greater part. In 1910, 180 dispensaries reported receipts of $1,069,613, while the property in the possession of 119 dispensaries had an estimated value of $5,720,052.

More and more will there be various kinds of special dispensaries. There is a law in Massachusetts today which requires in every city of 10,000 or more, the establishment of a dispensary for the treatment of persons affected with tuberculosis. Recent reports show that out of fifty-four towns to which that law applies, only thirteen have complied with its provisions. Now, the passage of this law indicates the official acceptance of the belief that every town of 10,000 inhabitants needs a tuberculosis dispensary; and I suppose that before many years pass, the law will be enforced. When that occurs, there will be in Massachusetts three or four times the number of tuberculosis dispensaries that exist today. This, I confidently predict, will happen within the next decade.

Let me say a word about dispensary work in New York. We have in the metropolis a population of between five and six million. More than three million treatments were given in New York dispensaries last year, and the number of consultations is steadily increasing. It is estimated that nearly 1,000,000 different persons look to dispensaries for treatment. There are twenty-five different kinds of dispensaries in the city, and the various departments, taken together, are open for business between 1100 and 1200 hours each day.

* Delivered at the 118th annual meeting of the Boston Dispensary, January 21, 1915.

In New York there is a certain amount of dispensary regulation. Dispensaries are required to obtain a state license before undertaking to do business, and it is notable that out of the applications that are presented, it seems wise to the State Board of Charities to deny at least a dozen every year.

I hope the time will come when State regulation in this field will be more rigorous, and will be intelligently standardized. The rules of the New York State Board of Charities are comparatively mild. It is required that those who desire a dispensary license shall give proof of a benevolent interest in the work, as attested at least by the possession of and willingness to spend some of the money that is required to carry on the work in a decent way. When the State Board rejects an application, it may signify that in the opinion of the Board, the motives of the applicant are not wholly disinterested; or granting disinterested motives, that the applicant is lacking in means or ability. There is, therefore, in the attitude of the State Board of Charities some faint glimmering of an appreciation of the need of standards—of proper standards, in dispensary work. But among those who satisfy the scrutiny of the Board, who enter the fold and who actually establish dispensaries, there are not a few who, in the opinion of competent and impartial critics, fail to carry on the work in a satisfactory manner.

If the term "dispensaries" is to be liberally interpreted, there are in operation in various parts of New York State a great many dispensaries which are not classified as such by the State Board of Charities, but which, nevertheless, are doing dispensary work. A dispensary might be defined, in the current sense, as a place to which ambulant patients may come for gratuitous or semi-gratuitous examination, advice and treatment. Many places which correspond to this definition receive no recognition from the State Board of Charities.

In certain of the departments of the government of New York City, medical supervision has been established over employees; this has been done in the police, fire and health departments, where employees are examined, advised and treated without charge when ill. This system is supposed to make for individual and departmental efficiency, and to afford some measure of protection to the municipality's pension system.

In the New York Department of Health, where the medical supervision of employees was instituted only last year, we had a different idea in mind. It is not, primarily, *sick* employees who are examined—*all* employees are to be examined periodically. We want to prevent and to postpone disease; we hope to take as good care of those who are in the service of the Department as the physical director of a college takes or should take of students in the college; but our work is of greater importance than college work, because it embraces the whole period of the employee's working life. Work of this kind is bound to develop apace among private, as well as among government, employees.

There are in New York City, and elsewhere, mercantile and manufacturing establishments in which there exist emergency treatment rooms. These are industrial "accident" dispensaries. Out of these little dispensaries there will come, in the course of time, a broad movement for safeguarding the health and promoting the welfare of workers. Unless I am much mistaken, there will develop out of these accident rooms a system of periodic physical examinations, so that insidious chronic diseases, whether related or not to occupation, may be discovered at the earliest possible moment and be checked before great and irremediable harm is done.

Another dispensary type which merits attention is the babies' consultation room or milk station. Milk stations are multiplying rapidly. Fifty-seven such stations are conducted by the Department of Health of the city of New York. Here mothers are taught how to care for their children according to the laws of hygiene.

In many localities medical care by lodge doctors is the chosen or established method of dealing with sickness among the relatively poor. I am told that in your own city of North Adams, with a population of 22,00, 8,000 persons are in the care of lodge physicians to whom the members pay an annual stipend for medical care. One might ask whether the lodge doctor is a satisfactory substitute for the dispensary. Where lodge doctors flourish, is it desirable that a dispensary be established?

I have no deep-rooted objection to lodge doctors. Among them are many competent medical men; and between the slip-shod service of the poorer kind of dispensary, and the painstaking care of the conscientious lodge doctor, the choice easily lies with the latter. A lodge doctor, however, has this limitation; he is only one man; he can acquire, therefore, only that degree of medical knowledge and skill that it is possible for a man to acquire who is engaged in the general practice of medicine. He is not able to compete in knowledge or in skill with a co-ordinated group of specialized physicians, surgeons, and pathologists, working together in a comprehensive organization. Since, in comparison with such a group, the lodge doctor's capacity is necessarily inferior, we must declare the dispensary to be the better plan for dealing with many ambulatory patients of the poorer kind. That the lodge doctor is paid for his service and the dispensary doctor, as a rule, is unpaid, is an important matter, especially to the doctor; but this is a question to be treated separately on its own merits, and should not influence our decision of the question which is here under consideration.

Beginning next year, New York will require the names of the ingredients of patent medicines to be given on the labels; or else that the names of the ingredients be filed with the Board of Health, which will examine and pass upon the reasonableness of the therapeutic claims which

are made on behalf of the respective preparations. The representative of a large retail drug firm recently told me that the business of his firm in Boston alone amounts to $3,000,000 a year, largely in patent medicines. Now I am ready to admit that whether a man will run the risk of using a secret remedy, or will prefer the advice of a qualified physician, is partly a question of his intelligence and mental training; but much depends and will always depend on the accessibility, the cost and the quality of medical service. Legitimate medical practice will gain ground in proportion to its quality and its availability. A large number of the comparatively poor now resort to self-medication, lured by unscrupulous and undiscriminating catch-all advertisements; but as people are gradually taught to appreciate the dangers of self-diagnosis and self-medication, the demands on dispensaries will be increased, and their resources, however great, will be found to be inadequate.

Dispensaries are growing in number, in capacity, and in variety, and this growth is stimulated by various factors, some of which have been mentioned. Are dispensaries growing in effectiveness?

We are told that when a man sets up in Germany as a teacher of philosophy, he spends some years at the feet of the great masters, and eventually adopts as his own that system or method of philosophic thought which appeals to him most strongly. Before beginning to teach, he enunciates his theory and method. Before analyzing dispensary work, one ought to have some years of experience, and then adopt a plan—a system of approach. Shall we approach the subject rationally or empirically? If rationally, we shall have to begin with some general principle, and test dispensaries accordingly. Now, following this method, I must begin with the confession that, in principle, I am devoted to the *hospital* dispensary; I think it imperative that a dispensary, in order to reach maximum efficiency, shall be associated with a hospital. But I hesitate to declare my belief in this principle because the Boston Dispensary is not a hospital dispensary (with the exception of its children's department), and yet is recognized as perhaps the most progressive dispensary in the United States today.

However, the hospital dispensary has undeniable advantages. There are open to the dispensary which is attached to a hospital opportunities which are denied to the independent dispensary. If a patient comes to the hospital dispensary and is found to be in need of hospital treatment, he can be admitted to the hospital promptly and directly, and the dispensary staff can follow the case to the wards. Cases can thus be handled in continuity from start to finish, either by one man or by a group of men working in harmony. Moreover, hospital patients can be sent to the dependent dispensary and its social service department for after-care. I need not expand this argument here; but I think it worth while to say that it is really remarkable that the Boston Dispensary has attained its almost unrivalled position in the dispensary field, in spite of the fact that it is not, except in relation to its children's department (and there only recently), a hospital dispensary. There must be reasons for this. What are some of the reasons?

One reason for the success of the Boston Dispensary is the fact that it has sought to appraise its own work honestly. You have been able to see and willing to admit to yourselves and to others, the things which you were *not* doing, and which, you believed, ought to be done. A dispensary of the average sort makes much of the fact that so many patients come to it each day or each year. The Boston Dispensary, however, was the first, or one of the first, to inquire how many patients failed to return after the first visit, and to ask why such patients did not come back. If I correctly understand the point of view of your Director, whose enthusiasm for the work has meant so much to all of us, the failure of a patient to return for needed treatment is regarded as discreditable to the dispensary. The Boston Dispensary, then, has excelled in patient and illuminating self-analysis.

Moreover, the Boston Dispensary was one of the first dispensaries to recognize the interdependence of medical and social work. It has long been known that there is a connection between environment and disease. The study of occupational diseases was inaugurated at Padua hundreds of years ago. From time immemorial, the clinical history forms used in hospitals almost everywhere, have included a line for the recording of the patient's occupation, but this record was made in routine fashion. It meant absolutely nothing. Oftentimes it was not even an accurate characterization of occupation, and was valueless for any statistical or scientific purpose. You approached these matters in greater earnest; you realized that the patient's social and occupational history was a factor of genuine importance, and perceiving that the dispensary could rarely cure and almost never prevent disease by mere drugging, you proceeded to build up an organization in which medical work and social work have been effectually correlated.

You have sent your nurses and social workers into the homes of your patients, and have thus accomplished much for the patients as individuals. Are you going to stop there? Working with your patient as an individual, you try to alter his habits or to improve his environmennt so as to favor his recovery from disease, and to facilitate the maintenance of his health subsequently. All of this is well worth doing. But are you willing to stop there? Isn't there something else that cries out to be done? I believe there is.

If a hundred patients should come into your dispensary, presenting some common symptom and giving a history of a single occupation, your social workers would speedily notice the correlation between disease and occupational habit. In

fact, large numbers of patients engaged in a single occupation or exposed to the same environment do not come to the dispensary together, but in such scattered fashion that it is not very easy to discover the common factors in a large group of cases. Nevertheless, in the background there are common environmental conditions which need to be treated in themselves, with a view to disease prevention. May not the dispensary, which in its records of thousands of cases possesses the key to these conditions and can show the harm they do, properly concern itself with environmental treatment, with social conditions, with social reform?

It may seem a far cry from dispensary work to the single tax, yet the Surgeon-General of the United States Army *advocates the single tax on land as a health measure.* Col. Gorgas believes that an important cause of disease among the poor is overcrowding in habitations; it is his theory that the single tax would lessen congestion, would distribute the people over the land, and would thus minimize disease. You see he does not deal with disease in the orthodox way; he goes after what he believes to be the underlying cause and combines political economy and constructive statesmanship with sanitation. We may or we may not agree with his political economy or with his theory of taxation; we cannot fail to commend his plan of bringing within the field of sanitary observation concealed factors which he believes to have an indirect but a real relation to disease; and we must admit that such broad vision as this makes even the admirable and effective social work of the Boston Dispensary look very small.

The Boston Dispensary has done more clinical team work than the average dispensary; it has linked its work with that of the medical schools; it has persistently and effectively associated the medical and the social worker. Let me refer briefly to each of these things.

"Clinical team work" is a phrase that is in everyone's mouth nowadays. Where and to what extent is clinical team work demanded? Organized or institutional medicine, the medical practice of associated specialists, tends to supplant the private doctor, because where a man works alone the advantages of team work are lacking. The growing complexity of medicine as science and as art, calls constantly for more team work.

The most complete expression of medical team work is found in the large general hospital; if properly managed, such a hospital commands the best talent and the best equipment in the right proportions and in the most effective relations. One large and complete general hospital is better than several small hospitals, because the very small hospital cannot have a first class laboratory organization, nor a clinical organization full enough to permit clinical team work to be developed in the highest degree. In the general hospital, and in the general dispensary in which the clinical departments are organically related, there is clinical team work in its most admirable form. In most of our cities, the benefits of this service are available today for the very poor and for the rich.

Unfortunately, the facilities of general hospitals and dispensaries are not widely available at present for the patient who is just above the poverty line; yet such patients form the most numerous class in the community. Should not an effort be made to place efficient medical organizations within the reach of this class? Forty New York dispensaries were recently invited to enter this field, and all declined. The Boston Dispensary, however, has made a beginning with its self-supported evening clinics.

The organization of clinics for self-supporting working people is just now especially important because of impending social legislation. Such organization will facilitate the introduction of state-regulated sickness insurance, and will add to the value of such insurance when established. Great Britain launched its insurance scheme before adequate preparation was made. The great voluntary hospitals and out-patient departments of London, where much high-grade medical work is done, but done gratuitously, were not incorporated in the government's plan; the medical care of the insured was left to district or panel doctors, with their necessarily limited knowledge and inferior facilities for diagnosis and treatment. A medical organization which is fathered by the government should be on a higher plane of efficiency; and in order to insure the best results, the principles of team work must be utilized.

Now that this country is moving toward sickness insurance, I hope that we shall be foresighted enough to utilize in whatever plan we may adopt, the available resources of our existing medical institutions, both hospitals and dispensaries; without this, we cannot provide medical service of the best kind. Of course the present facilities will have to be greatly increased; and since the medical work will no longer be charitable work, but part of a scheme of social insurance, adequate compensation will have to be provided for the doctors.

You ought to have in Boston, for the study of these problems, a strong organization representing all of the respectable dispensary elements. It is of vital importance that the dispensaries get together and agree upon proper working methods. Such an organization would find, I dare say, that much more money should be invested in dispensaries. It would be a splendid thing if you could establish a central fund, to be distributed among dispensaries in proportion to their needed service. A central organization with cash resources could do much to promote the standardization of dispensaries upon sound principles. This is a task which in New York may be undertaken in the near future by the Hospital Saturday and Sunday Association,

whose trustees have the matter under advisement.

I should like to say a word in relation to teaching. The dispensary has a well recognized place in medical education. Time was when medical students were brought into clinics chiefly for the study of normal physical signs. There may have been some benefit to the students in this, for the physician must familiarize himself with normal signs before he can intelligently differentiate the signs of disease. But the student in the older days was interested in the patient's body—not in the patient. The student who enters the dispensary today finds himself in a different atmosphere; in a dispensary like yours, the student cannot fail to have his attention directed to the patient's individual character and needs, and to the social aspects of disease as well. With your aid, the student acquires a knowledge not only of curative medicine, but of some of the most important aspects of preventive medicine. As a teaching institution, therefore, the dispensary has distinctly improved.

Certain types of dispensaries are essentially teaching institutions. The so-called milk stations are mothers' schools, where infant hygiene is taught. Besides instructing mothers in the care of their children, milk stations should be used as centers of inquiry for the purpose of ascertaining and making public social facts that have a bearing on infant mortality. A recent survey of a district in New York showed that 45% of the fathers of the registered children were not regularly employed, and that 65% of the mothers worked outside of the home to help support the family. Under such circumstances it is not surprising that infant mortality in this district reaches the appalling figure of 340 per thousand—more than three times the average for the city as a whole. May we not look to general dispensaries as well as to milk stations and tuberculosis clinics, to make it one of their principal objects to disclose much facts as these? Under the influence of such work, dispensaries will soon perceive the desirability of close co-operation.

In New York certain conditions are characteristic of special sections. The various racial groups often settle in localities which they make peculiarly their own. In many cities there are districts where nearly everybody is engaged in one industry. Where such conditions exist, social studies would be facilitated by a comprehensive municipal organization of dispensaries on the district plan. Obviously the existence of independent dispensaries presents obstacles to a co-ordinated district plan. For various reasons, voluntary institutions are unwilling to agree to a district system; for instance, a dispensary may fear that its appeal for contributions would carry less weight, if patients were accepted from a limited district only, instead of being permitted to come from anywhere. This particular fear, by the way, has been shown to be groundless; but the idea persists; and the voluntary dispensaries continue apart, handicapped themselves by their separation, handicapping each other and the municipal dispensaries with which they decline to associate.

From the standpoint of social organization rather than that of individual service, there are certain advantages in the public as against the private management of dispensaries. Without doubt, the dispensary work of a city should be broadly planned, and this is most readily done when the work is regarded as a municipal or public function. But the United States is far from ready to discard voluntary hospitals and dispensaries. Present plans, therefore, should aim at the co-ordination of voluntary and municipal dispensaries; the two groups should work together in a serious effort to meet the needs of the hour: each will profit by contact with the other, but the community will profit by the partnership most of all.

Prof. Münsterberg recently said that social unrest could be done away with, if the problem were handled by psychologists; that what the discontented worker needs is not more of this world's goods, but a different view-point, which the psychologist could easily implant. Münsterberg would strive to make the discontented factory hand who receives $5 or $6 a week, realize that he is part of the great social machine that is working out the evolution of the race. What the poor need, in other words, according to Münsterberg, is not more bread, better clothing or improved housing, but an inspiring social philosophy. That happiness is a subjective, not an objective, state, may be admitted; but no social philosophy, however altruistic and optimistic, will produce universal contentment.

The dispensary worker needs a social philosophy, not to make him happier, but to accentuate his earnestness. He should sympathize with the patient as an individual; but also he should see the patient as a part of the social body, and with this vision before him, he is certain to redouble his efforts, and to direct them into more useful channels. In proportion to the clearness of his social vision, will the emphasis in his work be placed on preventive rather than curative medicine.

The broad aim of preventive medicine is to make normal living possible for everybody. If conditions of housing, work, food or recreation are unfavorable to the attainment of this ideal, the dispensary must uncover the facts, denounce the evil, and help to secure the application of the remedy. No other institution is more advantageously placed for purposes of social observation; hence it is the peculiar duty of the dispensary to participate in constructive social reform. Upon suitable occasion, the dispensary must not hesitate to sound the social fire alarm; society will heed the warning if the note is sounded clearly.

CARE OF PROSPECTIVE MOTHERS.*

BY ARTHUR B. EMMONS, 2D, M.D., BOSTON.

OUR new Health Commissioner of Massachusetts, Dr. McLaughlin, is pointing out that a health department to be effective must be efficient in all its parts. These parts, he says, include not only the State Department and local boards, but the physicians, the nurses, and the people themselves. Public health must begin with the individual and the family. Their teachers are the nurses who must depend on the doctors for their knowledge of hygiene. It is in your capacity of family health officer that I wish to address you doctors to-night.

My subject, "Care of Prospective Mothers," is a part of preventive medicine. Pregnancy care, intelligently and systematically given, I shall try to show, leads to better obstetrics, and thus adds to the safety of child-bearing, which is a most vital branch of public health. Is there need of improvement in this branch of public health? Or is it on a satisfactory basis now, not only among our well-to-do patients, but among the poorer people? I quote from some of our highest authorities in this country, who go to the root of the matter, the teaching of obstetrics in the medical schools throughout this country.

Dr. J. Whitredge Williams, professor of obstetrics at the Johns-Hopkins Hospital, through a questionnaire sent to the professors of obstetrics throughout the country, indicates the condition of affairs in part as follows:[1]

I. Many of the professors are poorly prepared for their duties and have little conception of the obligations of a professorship. Some admit that they are not competent to perform the major obstetric operations, and consequently can be expected to do little more than train man-midwives.

III. Many of them admit that their students are not prepared to practice obstetrics upon graduation, nor do they learn to do so later.

V. Reform is urgently needed, and can be accomplished more speedily by radical improvement in medical education than by attempting the almost impossible task of improving midwives.

VI, *c*. Recognition by medical faculties and hospitals that obstetrics is one of the fundamental branches of medicine, and that the obstetrician should not be merely a man-midwife but a scientificially trained man with a broad grasp of the subject.

d. 5 . Education of the general practitioner that he is competent only to conduct normal cases of labor, and that major obstetrics is major surgery, and should be undertaken only by specially trained men in control of abundant hospital facilities.

e. *Education of the laity* that poorly trained doctors are dangerous, that most of the ills of women result from poor obstetrics, and that poor women in fairly well conducted free hospitals usually receive better care than well-to-do women in their own homes. Teach that the *remedy lies in their hands*, and that competent obstetricians will be forthcoming as soon as they are demanded.

f. Urge the extension of obstetric charities—free hospitals and out-patient services for the poor, and proper semi-charity hospital accommodations for those in moderate circumstances.

g. Greater development of visiting obstetric nurses, and of helpers trained to work under them.

h. Gradual abolition of midwives in large cities and their replacement by obstetric charities. If midwives are to be educated, see that it is done in a broad sense and not in a makeshift way. Even then disappointment will probably follow.

This all comes from the professors themselves. Hear what another professor says of present conditions throughout the country: "Dr. DeLee[2] of Chicago in discussion said: 'Medical education in the department of obstetrics in the United States is below the standard maintained by the teaching of other departments, and continues to cry loudly for improvement. There is no question but that the medical men in the United States are not prepared to cope with obstetric emergencies. I feel that the statement cannot be controverted that there *die* in the United States, as direct and indirect results of childbirth, *20,000 women annually*. If we think what a furore would be raised in the community if yellow fever were to take off 20,000 human beings in one year, and on the other hand contemplate the equanimity with which the public views this annual loss of 20,000 mothers, the comparison is striking.

" 'We cannot measure the amount of *suffering and invalidism* entailed by bad obstetric practice, but to one who views the procession of maimed and sick women that enter our hospitals, seeking relief from the diseases and accidents of childbirth, it is heart rending.

" '*Hundreds of thousands* of babies are permanently crippled, either mentally or physically, as the result of improper obstetric management at their births, and in a goodly proportion the infant becomes *blind* as the result of carelessness.

" 'What is the cause of all these miserable conditions? There is but one answer. *The standard of obstetric teaching* and obstetric practice in the United States is *too low*. The public has no respect for the obstetrician. He is looked down upon, not alone by the people, but by the doctors themselves. The people will not pay the obstetrician properly for his arduous work. Obstetrics is the hardest branch of medi-

* Read before the Cambridge Medical Improvement Society, January 25, 1915.

cine to practice. It robs the doctor of his sleep, destroys his office hours, interferes with all his engagements, and besides that, the actual work is exceedingly laborious.' ''

Another aspect of the question was expressed by Dr. S. Josephine Baker,[3] director of Child Hygiene, Department of Health, New York. She says in part: ''No amount of legal enactment for mere control after licensing and no amount of mere supervision, however faithfully carried out, will ever solve the midwife problem. If we are to meet and master the situation,—and the need of such a course is imperative—we must insist that every midwife receive an adequate professional training before she is allowed to practise, and we must provide the proper schools for this purpose.''

Dr. Baker was one of those chiefly interested in establishing the Midwife School at Bellevue Hospital. She had the direct control of the large number of the midwives in New York City in 1911, 1344 permits, 51,996 births (40%) conducted by them. She has done a wonderful piece of work in bringing them to a higher level of efficiency and safety.

This, undoubtedly, is a temporary solution of the immediate deplorable situation in New York City where the midwives care for at least 50,000 births annually. The midwife system however must at bottom rest on the medical profession for the care of all abnormal cases. The cases treated by the midwives are lost to science and for teaching, and a second standard on a different level is established. An important branch of surgery is removed from the medical profession. *Is the medical profession ready to delegate normal obstetrics to the midwife?* Or are physicians ready to take the trouble, care, and expense of some other means to care, at an equal or nearly equal price, for these women?

From these statements it seems fair to conclude that the present system of caring for poor women is being shown to have failed to give reasonably safe care. If the medical profession does not face the difficulty and overcome it, various social forces are likely to demand an improvement by some means.

All this goes to show a general dissatisfaction, backed by statistics, of our present methods of caring for prospective and parturient mothers. How is it possible to better these conditions in our own city? I am here tonight to present one scheme—*the pregnancy clinic*. What does this mean? It means conserving the health and strength of the prospective mother; it means foresight and forehandedness during pregnancy. A common practice among the unenlightened or improvident, who blindly hope all is well, is to call at the last minute a doctor or midwife to meet unprepared any emergency. Pregnancy care substitutes for this haphazard method the following procedure:

The doctor sees the prospective mother as soon as she suspects that pregnancy has occurred. He learns the history of past illnesses and childbirths and her present symptoms. He makes a careful physical examination of the teeth, lungs, heart, and blood pressure, of the abdomen with estimate of the period of pregnancy, the size and position of the child, if near term, the rate and location of its heart, and careful measurement of the mother's bones to make sure no obstruction to birth is present. Swelling of the feet and legs is noted, and a urinary test of the kidney function is made. The facts thus gathered form a basis on which to predict the outcome.

Such prediction is the highest point of obstetric science, and to be reliable, must be made by a physician familiar with the experience of the past. Our medical fathers classified millions of cases and studied thousands of abnormalities. The physician must be prepared to use this knowledge. The judgment of such a man must be balanced by the experience of successfully meeting the many problems and emergencies of obstetrics. How does this help the mother? Here is one example: Professor Kerr of Glasgow, a few years ago, in the Maternity Hospital of that city, by using more exact methods, such as careful study of the pelvis and the size of the child's head, was able to reduce the number of forceps operations, where the pelvis was mildly contracted, from 91 to 47%, thereby reducing the infant mortality in such case from 18 to 2%, and the infant morbidity from 30 to 4%. Similar results have been obtained in this country by Williams at the Johns Hopkins Hospital. Are such results obtained in private practice? I leave it to you doctors to judge whether such study of *private cases* is being made today. Is it possible in the life of a busy general practitioner? With the usual fees paid for obstetric care, can he afford to spend the time for such careful study?

In many cases this preliminary study and care may seem a needless precaution. There are, however, many dangers and discomforts which may by early recognition be avoided. The most important of these are:

1. Contracted pelvis.
2. Difficult labor from disproportion of pelvis and child.
3. The toxemias of pregnancy.
4. Extra-uterine pregnancy.
5. Placenta previa.
6. Pyelitis.
7. Septic conditions, including gonorrhea.
8. Syphilis.
9. Tumors.
10. Intercurrent disease, as heart troubles, tuberculosis and malnutrition.

With the outcome intelligently predicted, the mother is confidently reassured and instructed in hygiene, and the nurse is put in charge of the case, with the doctor as consultant to guard against any abnormal condition which may yet develop during pregnancy. The nurse visits the

home at intervals of not over ten days. At the first few visits home conditions are seen and instruction given for personal hygiene in diet, baths, clothing, fresh air, sleep, and exercise, *i.e.* how best to conserve her strength for the good health of the baby and for the physical strain of labor and nursing. Later, necessary preparations for the coming of the baby are assured, with every precaution against infection to mother and baby. At all visits the mental and physical condition of the mother is critically observed, a urinary test is made, and the coöperation of the whole family is solicited. The dangerous advice of the gossiping neighbor is less likely to be followed. Experience shows that the tactful nurse is welcome in the home and her opportunity for good is great. It would be difficult to exaggerate the value of these visits, made by an efficient, sympathetic nurse to certain prospective mothers. Seldom will a nurse's personality tell more than in some of these friendly visits. Her social service training will often be invaluable in meeting the situation.

The problems of maternity and its relations with society are enormous. Scarcely a pregnant patient comes to our clinics today who is not worried by some social difficulty added to her physical burden. Such problems as illegitimacy, drunkenness, and desertion are frequent, while improvidence, unemployment, and a too small budget are the usual state. The pregnancy clinic attempts to meet these difficulties through the organization and coöperation of the nurses and social workers. Is the general practitioner prepared and able to do this?

To sum up, pregnancy care is *preventive medicine as applied to obstetrics,* i.e. the utilization of every known means to keep the prospective mother well and strong, to foresee and forestall dangers, intelligently to provide for confinement. This may be merely proper care in the home at a minimum expense for the normal case, or the best skill available in a hospital for averting tragedy. Preventive obstetrics thus includes a wide knowledge of the *anatomy, physiology, psychology,* and *sociology* of the patient.

To obtain the greatest efficiency in pregnancy care there must be coöperation of the doctors, nurses, milk stations, hospitals, boards of health, and the patients and their families. Before turning to the immediate subject of the local situation, I wish to call your attention to a piece of work which has resulted in the lowest known infant mortality, and "*infant mortality*" has been said to be the most sensitive index of the civilization of any locality. This *most civilized place* is not in Europe or America, but in New Zealand.[4] While Boston has an infant death-rate of over one hundred, and Massachusetts of 130 and over, New Zealand has a rate of fifty-one, and the city of Dunedin a rate of thirty-eight.

This has been accomplished in New Zealand primarily through the initiative of Dr. F. Truby King by means of the New Zealand Society and its public health nurses. Dr. King considers that pure milk represents a small part of the improvement which has been accomplished, while the *teaching of mothers* prenatally, postnatally, and later through the milk station, represents a far larger part in the improvement. He has made an *educational campaign.*

Improvement may also be shown to a less extent much closer home. In the city of New York[5] an experiment has been carried on by the New York Milk Committee, supported by private subscription. The two diagrams show, first, the need of pregnancy care (a still-birth rate in 1910 of 48.1 per 1000 births, an infant mortality under one month of 40.6 per 1000 live births), and second, the result of a considerable experiment of reducing infant mortality by pregnancy care, including the supervision in less than 2 years of 2644 mothers. (This resulted in a reduction of the still-births of 11.2 per 1000, and of the rate under one month of 10.8 per 1000 live births.)

I wish here to describe an experiment carried on in Boston.*

From April, 1909, a committee of the Women's Municipal League of Boston, under the leadership of Mrs. William L. Putnam, has in five years given pregnancy nursing care to 1512 women in Boston. The results have been truly remarkable. No death occurred among these mothers during pregnancy, and but nine maternal deaths at confinement in the hospitals, —0.6% in the full five years.

In the last three and one-half years no miscarriages.

Impending eclampsia: 60 the first year, 2 the last year.

Only four cases of real eclampsia have developed.

Stillbirths, including premature births, were for two years less than half that of the rest of Boston.

Infant deaths: Total number under one month of age, 43, or 2.8%, while Boston's rate in 1913 was 4.3%.

Percentage of breast-fed babies, 84.7%; percentage of mixed feeding, 4.5%; total, 89.2%.

After this five-year experiment the committee rests satisfied that pregnancy care by the nurse visiting in the home at intervals of not over ten days has demonstrated its efficiency in relieving suffering and preventing danger and disease to the mother, and rendering maternal nursing more successful, thereby reducing infant mortality.

Proceeding from this convincing demonstration, the committee, backed by an advisory board of experienced obstetricians, has undertaken the next step. That is the more difficult problem of medical supervision during pregnancy and adequate care at childbirth. Two dispensary preg-

* Experiment of the Committee on Infant Social Service, now changed to Committee on Pregnancy and Obstetric Care of the Women's Municipal League of Boston.

nancy clinics are under the committee's supervision, one at the Peter Bent Brigham Hospital, the other at the Maverick Dispensary in East Boston.

These clinics are under the direct supervision of an obstetrician. They use as a basis to work with, not the trained or untrained midwife, but the young obstetricians who are graduates of some maternity hospital, and the nurses of the Instructive District Nursing Association. For such an organization semi-free and free hospital beds must be available. We know that at any time during pregnancy the case may demand major surgery. The work is gradually being standardized. For example: No patient before confinement may be visited by a nurse more than twice unless she has been examined by a private physician or by the obstetrician at the clinic. Thus the medical responsibility is carried by the doctor, which the committee feels is essential for the best results. Such a system is designed to use the ever increasing medical and nursing knowledge available in any community and to stimulate this to its highest efficiency. Results are encouraging, but not yet sufficiently numerous to warrant generalization.

THE SITUATION IN CAMBRIDGE.

Cambridge is to be congratulated on its excellent district nursing association. The directors of this association have recognized that a nurse is needed in the home at childbirth fully as much as at any other time. Few district nursing associations have succeeded in overcoming the difficulties involved in caring for obstetric cases in their homes. The irregularity of hours, and frequently the length of time required to care for such cases has made the expense so burdensome that other district nursing associatons have shrunk from the task. I am told that in Cambridge every emergency has so far been met. It is recorded that during one rainfall of babies the whole nursing staff was used on obstetric cases; but it is their just pride that they cared for every case.

I am also informed that the physicians in Cambridge, in spite of poor pay and the other burdens of obstetric care, have generously responded to the call of the rich and poor alike, and thus have continued to meet the traditions of the medical profession, and I have no doubt this has entailed a considerable burden on many physicians, for obstetrics today among the poor is not a profitable business.

To demand or even expect more time, study, and care from these physicians with no extra compensation would hardly seem just and right, and yet there is a considerable number of cases, I am informed, where large benefit to all concerned might result if a pregnancy clinic were established. To give, perhaps, the worst possible example, I cite the following case:[6] The Conviction of a Midwife; Commonwealth vs. Connor. Catherine Connor was convicted on July 28th in charges connected with the blindness of a baby. Two mothers, one of them the mother of the blind baby, testified that Mrs. Connor had attended them in childbirth. In so doing she had practised obstetrics, a recognized branch of medicine, and not being a registered physician she had thus violated the Medical Practice Act . . . Mrs. Connor had seen the baby's eyes red and swollen and showing an unnatural discharge. Having "seen many such cases before" she provided a brown medicine which she dropped into the baby's eyes, thus again practicing medicine without a license. She also failed to report the birth until legal procedures had been begun, thus violating the Registration Law. She failed to report the symptoms of ophthalmia neonatorum, thus again violating the law. The court found her guilty. On request of the prosecution, and because of the defendant's extreme age, *84*, sentence was suspended, on the understanding, however, that the defendant would absolutely give up practice.

The blame for such conditions cannot be laid at the feet of any responsible person, least of all to the medical profession, which has always been ready to care for such cases. Society must, however, recognize that such conditions exist, and it is the hope of some of us at least that the presence of an organized pregnancy clinic in the community may reduce the likelihood of such deplorable happenings. It is our hope that the general level of obstetric care, particularly in the poorer districts, may be raised to what could be fairly considered a service of reasonable safety to those of limited means. Such a project has, therefore, been prospected.

It has been suggested that a clinic be established, holding a weekly conference at the Cambridge Neighborhood House, that the Committee of the Women's Municipal League, whose object is to develop such work about Greater Boston and to stimulate it elsewhere, be responsible for the management, together with the District Nursing Association, whose nurses will carry the work into the homes after being present at the weekly conference, and with the aid of the social forces of the Neighborhood House. Such a project seems to me most favorable for carrying on a work of this character, designed for the good of the community and directed particularly to the better care of prospective mothers. Such a project, however, must have support. It is the hope of those interested that this medical society will give us moral and professional backing. Its very name, the Cambridge Medical Improvement Society, encourages us to this conviction.

Such a project must also have financial assistance. To establish a service which requires considerably more time of trained workers, where already financial stress has reduced the compensation below a profitable basis, means that such a service must be run at a considerable loss.

Any new project involving more expense to those of limited means, even though it may bring better service, is bound to be a losing business. Those interested already recognize this feature and are making preparations to appeal to the community, especially to the women of the community, for at least partial support. The plan is not to give such service free, but to urge all patients to pay the cost, probably from $10 to $15 for complete nursing and medical care, or perhaps $5 where the patient has her own private physician. The obstetrician's time at the clinic will be given free by the committee of the Women's Municipal League. Our experience in East Boston during the first year of that clinic, where patients were asked to pay $10.00, was that we received an average of a little over $7.00. This is probably a greater proportion of the worth of such service than is paid by the students at Harvard College toward their educational advantages. Thus we do not consider that we are in any way pauperizing the community.

I began by saying that I wished to speak to you doctors tonight in your capacity of public health officers, and I believe that this project will appeal to the medical profession in this special capacity. It is easy to prove that the occupation of being an infant in Boston is more dangerous today than that of being a soldier in the European War. It has also been shown that 42% of this infant mortality takes place within the first month of life, which represents the large factor that prenatal and birth conditions play in this high infant mortality.

Two views of meeting the problem of reducing this early infant mortality are being put on trial throughout the country. First, the education, licensing, supervision, control, and re-education of the midwife to handle normal obstetrics. The other, to improve the teaching of obstetrics in the medical schools and to develop the maternity service to the community, *i.e.* lying-in hospitals, out-patient and pregnancy clinics. This scheme preserves *to the medical profession* the care of women at this critical period of their lives. The midwife program is probably the cheaper. The pregnancy clinic, working through the doctors and nurses, retains for the medical profession the care of such cases. In backing such a scheme as has been outlined here, you thereby help to preserve to the medical profession its privilege of rendering intelligent aid to civilized woman at her most critical time of life. I have complete confidence that neither time, effort, nor money will induce you to give up such a privilege.

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Original Articles.

PERFORATION OF THE STOMACH AND INTESTINE BY FOREIGN BODIES THAT HAVE BEEN SWALLOWED.*

BY F. S. WATSON, M.D., BOSTON.

I HAVE selected the subject of this communication to present to you this evening, partly because I happen to have had six cases of the condition in my care, partly because some of their features interested me, and partly because I did not recall its having been brought before any of our medical associations here for discussion.

In order to bring the communication within the limits appropriate for the occasion, I have not attempted to treat the subject exhaustively and have confined my exposition of it to a sketch and to the mention of some of its more essential features. I have also restricted it to perforations of the stomach and the intestine, omitting cases of perforation of the appendix or Meckel's diverticulum, of which all of us have doubtless had a good many. I will briefly refer to my own series of six cases first, and will conclude by calling attention to some of the features of the subject in general.

The perforating bodies in my own series of cases were as follows: 1. A wooden toothpick. 2. A needle such as is used in sewing canvas. 3. A fish bone. 4. A bristle. 5. A flat, thin bit of bone with sharp edges. 6. A body of unknown nature, having the shape of a bit of lead pencil, and about an inch and a half in length.

Four of these bodies I have brought with me to show to you; the other two, I regret, were lost.

Sites of Perforation. The sites of the perforations were located in three of the cases. In these they were: In the upper part of the jejunum, in the small intestine near the ileo-cecal valve, in the transverse colon midway in its course. In two of the remaining three they were presumably high up in the intestinal tract or in the stomach, and in one of them in the small intestine near the ileo-cecal valve.

Pathological Processes Produced by the Perforations and Foreign Bodies. In all but one of the cases the pathological conditions discovered were those that are seen in circumscribed peritoneal infection and inflammation.

In three of them intra-abdominal abscesses had been formed. In one of these the abscess had approached the surface of the abdomen, and would doubtless have been spontaneously evacuated there had not the operation been done.

In the second example of intra-abdominal abscess, that in which the jejunum was perforated, the conditions were of a more acute and severe grade of local peritoneal infection. The perforation in the bowel was large enough to admit the tip of the little finger, and fecal extravasation

* Read at the meeting of The Boston Surgical Society, March 1, 1915.

was taking place from it into the cavity of the abscess. The process was but five days old in this instance.

In the two cases in which the perforations were in the small intestine near the ileo-cecal valve, the areas around the sites of the perforations were well walled off from the peritoneal cavity by adhesive processes. An illustration of the condition seen in a good many of these cases was afforded by the toothpick case. Here the foreign body had evidently but very recently perforated the bowel, nevertheless, the immediately adjacent area was walled off by adhesions that had been formed before the perforation actually took place.

In the transverse colon perforation and in that caused by the bristle the conditions presented were somewhat unusual. In the former there was a tumor about the size of the palm of my hand, projecting above the surface of the abdomen somewhat, at the level of the umbilicus and extending downward toward the upper margin of the symphysis pubis in less conspicuous form.

This tumor represented an enormously thickened portion of the left rectus abdominalis muscle which at its thickest part must have measured two inches in depth. Immediately beneath this was a mass formed by the thickened omentum which was intimately attached to the parietal peritoneum overlying it, and which extended upward and downward. Beneath and below this mass was a second one, the lower border of which reached the level of the brim of the pelvis and extended toward the spine posteriorly. This mass was an intra-abdominal abscess containing about twelve ounces of pus and the foreign body. The three parts just described were welded into one mass which gave the impression of a large intra-abdominal solid tumor.

The perforation was not seen at the time of the operation, but was revealed by the autopsy, at which it was found to be in the transverse colon. Fecal extravasation had been prevented by the firm glueing down, above and around it, of the omentum.

In the bristle case the condition was seen in the form of a tumor upon the external surface of the left upper quadrant of the abdomen, having the size of my closed fist and composed of chronic inflammatory tissue. The base was intimately united with the left rectus abdominalis muscle.

Symptoms and Diagnosis. One of the most interesting points connected with these cases for me personally, in so far as the diagnosis was concerned, was my failure to make a correct diagnosis in any of the cases; at least this was true with regard to the etiological factor in them. The reason for these errors was that no information was vouchsafed by any of the patients of their having swallowed a foreign body. In two of the caes I knew, it is true, that I had to deal with intra-abdominal abscesses, but their origin was entirely obscure. In two in which the small intestine was perforated near the ileo-cecal valve, the symptoms were absolutely typical of attacks of subacute appendicitis, and I believed them to be such. In the perforation of the jejunum, the picture presented was that of an acute and severe peritonitis, and despite the absence of previous symptoms I was inclined to believe it to be a case of perforating ulcer of the duodenum. In the fish bone perforation with the large intra-abdominal abscess, there had been but very moderate intra-abdominal or constitutional symptoms and the gastro-intestinal function was but slightly disturbed. Here I knew that there was an intra-abdominal abscess, but whence it came I did not know. In the patient with the transverse colon perforation the symptoms had been mild for the first fortnight, but had increased in gravity during the ten or twelve days preceding his entrance to the hospital. He had lost strength rapidly during that period and was very critically ill when I first saw him. Constipation had been present for four days. His complexion was of grayish color. Tongue heavily coated. Pulse weak and rapid. Abdomen distended, and muscular rigidity was evident. Leucocytosis of 7000. Temperature, 99.8° F. The physical abdominal conditions found have already been described.

In the bristle case there was an entire absence of intra-abdominal and of constitutional conditions. The patient had noted merely the presence of a tumor in the upper left quadrant of the abdomen which had painlessly increased in size until it was as large as my closed fist. This tumor was closely attached at its base to the left rectus abdominalis muscle and had the feel and general history of a sarcoma of the abdominal wall. It was thus diagnosticated by two of my colleagues at the Massachusetts General Hospital, by one of them at the Boston City Hospital and by myself.

Its duration was two months.

Treatment. The treatment in three of the cases consisted in opening, cleansing the intra-abdominal abscesses and removing the foreign bodies. In the jejunal perforation the opening in the gut was closed by suture.

In the two cases simulating appendicitis, the foreign bodies were removed. In the one in which the toothpick had made a perforation of the gut the opening was closed with one suture. The appendices were taken out as a matter of routine. The abdominal wounds were closed tight without drainage.

In the bristle case I made an incision into the tumor in order to remove a small bit to send to the pathologist for a rapid diagnosis, and by good chance exposed in so doing the tip of the bristle you have seen tonight. Enlarging the incision I traced it to and through the abdominal wall. It was removed, the mass of chronic inflammatory tissue was cut off at the base and the wound closed.

Remarks. It is impossible to determine the proportion of cases in which perforation by foreign bodies that have been swallowed occurs, relative to the whole number of those persons who

have taken them into the stomach and intestine. This, because the number of those through whose gastro-intestinal tract they pass without injury and whose cases, therefore, are not published, is doubtless far in excess of those whose cases have been reported. In the reported cases of foreign bodies ingested, perforation has occurred in about 8.0%.

Foreign bodies remain, as a rule, longer in the stomach than in the intestine, so too is the stomach more often the seat in which foreign bodies are found to be present than the intestine.

The longer the foreign body is, the more likely it is to be detained in the stomach. The shorter ones usually pass into the intestine.

The character and the number of foreign bodies that have been passed through the whole length of the gastro-intestinal tract without inflicting serious injury upon it, is extraordinary. Among them are recorded the following: Pocket knives, hairpins, safety pins (open and closed), nails of different sizes, bits of glass, table knives, spoons and forks, fish hooks, and a large variety of substances such as bones, bits of lead solder and of enamel from tin and other sorts of vegetable cans.

Per contra, far less formidible foreign bodies have caused perforations of the stomach or intestine some of which have resulted fatally.

One point worthy of being noted is: that perforation has taken place in the bowel in a few instances after the foreign body has passed through and out of the gastro-intestinal tract, seemingly without having inflicted any injury. In these cases the subsequent perforations have been produced as the result of an ulcerative process set up by the foreign body during its stay in the bowel, some point in which has thereby become weakened and finally given way.

One of the factors determining the detention of foreign bodies in the intestine and, in a certain number of cases, perforation, is the existence of narrowings, or constrictions in it. The more frequent causes of these are the results of tuberculous disease, syphilis, and kinks of the bowel.

The most frequent sites of perforation of the intestine are in or near the right iliac fossa. We have all had a greater or less number of cases in which foreign bodies have perforated the appendix, of course. In a considerable number perforations take place in the cecum and in the small intestine near the ileo-cecal valve. Another favorite site of lodgment and sometimes of perforation, is near the anus. In a few instances of this character fatal phlegmon around the rectum has been produced following perforation at this point. I do not know the relative number of perforations of the stomach as compared with those of the intestine, but it is my impression that they are fewer in the former and that the larger number of these have been made by knives and other sharp bodies that have been ingested.

Sometimes the foreign body has made its way through the intestine and into the vagina or bladder. One interesting example of the latter condition is reported by the English surgeon Mr. Reginald Harrison.

The patient came to the hospital in this instance because of a stone in the bladder. On doing a lithotomy operation Mr. Harrison withdrew a calculus of unusual shape. It was of long oval form. Its nucleus was found to be the stem of a pipe. The patient on being questioned declared that he had swallowed the mouthpiece of his pipe during a drunken sleep. He had experienced no trouble from it and did not associate his vesical symptoms with the incident. In this case the communicating opening between the bowel and the bladder had closed spontaneously. In other examples of this condition and of the cases in which the foreign body has been spontaneously discharged on the surface of the abdomen, fecal fistula has resulted and required operation in order to close it.

An interesting and important feature of the cases of perforation of the stomach or intestine by foreign bodies that have been swallowed, is that in a large number of them the area of the peritoneum immediately about the site of the perforation is already walled off by an adhesive process before the foreign body actually penetrates the wall of the intestine. It is because of this fact that the number of fatal results from perforations of this sort is so small. It may be estimated from a series of 82 cases collected by Wölfler in which but eight deaths occurred.

The course observed in the majority of cases is that which is seen in my own series; that is to say, the clinical picture is presented of a circumscribed peritonitis of varying degrees of intensity.

In a considerable number of the cases there is formed an intra-abdominal abscess, and a good many of these make their way to the surface of the abdomen and are spontaneously evacuated there. The foreign body is usually evacuated with the contents of the abscess. In some instances it is retained and an operation is required for its removal.

In many of the cases the opening of the perforation has closed spontaneously before the abscess arrives at the surface. In a smaller number it remains open and a fecal fistula forms, as has been said.

The time occupied by such abscesses in reaching the surface is sometimes very long; weeks, and even months, have been noted in some of the cases.

In a few examples the abscess has pointed at a spot remote from the site of the perforation. Wölfler mentions one case in which it was found over the trochanter of one of the femurs.

In a few instances the conditions that were seen in the case of the bristle perforation in my series, have been met with: that is to say, the formation of a solid tumor, external to the abdominal wall, and having the appearance of a

sarcoma. In these cases the foreign body has usually been of small caliber and the mass of chronic inflammatory tissue is produced by long continued irritation.

The length of time during which foreign bodies that have been swallowed remain in the gastro-intestinal tract varies greatly. The shortest time that I have found recorded in any case was five hours. The average time is from three to six days. Months may elapse before they are passed out, and in a few cases the body has remained without its presence being suspected throughout life.

The most interesting examples of the taking of foreign bodies into the gastro-intestinal tract are to be found in that class of talented persons who have elevated the art of swallowing all manner of objects to the dignity of a profession.

I may briefly refer to two examples of these people. My attention was directed to the first of them when passing the portals of a dime museum by seeing a placard which bore the following legend "The World's Wonder—The Great Australian Glass Eater." Beneath the placard stood a barrel filled with bits of glass of varied shapes and sizes, and upon the barrel were painted the words "His Diet."

I entered and watched this gentleman eat his noonday meal. It consisted in a goodly number of bits of glass. This he swallowed seemingly without discomfort. I was informed that he had been engaged in this nutritious occupation for no less than five years. He presented the appearance of excellent health.

In the stomach of the second person of this fraternity the presence of the following objects was revealed by a radiograph: Two watch chains, three door keys, eight horse-shoe nails, some bits of glass, a breastpin, six safety pins—two of them open, a pocket knife, and some other articles the nature of which I do not now remember. These represented the residue of this person's diet during the previous six months. He ultimately became afflicted with symptoms of dyspepsia and sought medical advice. A gastrostomy operation was done and the articles named above were restored to him, and after a short convalescence he resumed his former professional vocation.

Some of the professional "swallowers" have had a less fortunate fate, however. Wölfler reports two instances in which, the stomach having been perforated by knives that had been swallowed, death resulted as a consequence.

The two points which have especially interested me in connection with this subject have been: The difficulties that may be offered to making a correct diagnosis which is due to the absence of information of a foreign body having been swallowed, and, the seeming injustice displayed by the unequal distribution of the immunity to injury that is exhibited by certain persons who are privileged to swallow without harm almost anything they can take into their mouths; while others cannot swallow even so innocent looking a body as the bristle that I have showed you tonight without having a perforation of the stomach or intestine result, and being forced to live in constant anticipation of impending death because of the presence of a tumor on the abdomen which was of a character such as to involve in an error of diagnosis four of Boston's distinguished surgeons, one of whom has just had the pleasure of addressing you.

VARIETIES OF THE GOLD SOL TEST (LANGE) IN SEVERAL LOCI OF THE CEREBROSPINAL FLUID SYSTEM: A STUDY OF TWENTY-EIGHT AUTOPSIED CASES.*

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and

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The present communication offers evidence that the cerebrospinal fluid in different loci varies in its chemical composition. The method of examination used is the gold sol reaction of Lange. The test was performed on fluids obtained post mortem in a series of twenty-eight cases. The attempt was made to obtain fluids from the several cisternae and spaces, namely:—

1. Cerebral subarachnoid space.
2. Epicerebral space.
3. Lateral ventricles.
4. Third ventricle.
5. Cisterna at base of brain.
6. Spinal subarachnoid space.

Obviously it is quite difficult, if not impossible, to obtain a clear (bloodless) fluid on all occasions; consequently fluid was available from many less than the possible 168 loci. From fifty autopsies, clear fluid was obtained from at least one locus, in twenty-eight from two or more loci, and in several others no clear fluid was obtained.

The gold sol reaction is now being used extensively in clinical laboratories for the examination of cerebrospinal fluids. It is an applicaton of the reaction of albuminous substances with colloidal gold. It has been shown and especially worked out by Zsigmondy[1] that albumins may be

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analyzed by their reaction with colloidal gold solutions. If to a colloidal gold solution one adds an electrolyte the gold is precipitated in the form of metallic gold. If, however, a proper albumin is added this precipitation (*Ausflockung*) does not occur. The different albumins offer this species of protection to the gold solution, depending on dilutions. They have been charted according to this characteristic, and different ones can thus be separated by the so-called "gold number." This is true of proto- and hetero-albumoses, while, on the other hand, deutero-albumoses react with the gold colloid as do electrolytes, and cause the precipitation of the gold. Spinal fluids from cases of certain inflammatory conditions of the central nervous system, such as the meningitides, tabes, paresis, etc., act in the manner of the deutero-albumoses and cause a change in the colloidal solution. Spinal fluids from cases in which there is no evidence of an inflammatory process often exhibit no effect, or only a slight one, with the gold sol test. There seems to be no doubt that it is the proteid element in the spinal fluid that causes the change, a proteid different from that normally present in the spinal fluid.

The technic and details of the test may be found in the original articles by Lange,[2] or in English by Sippy and Moody,[3] Miller and Levy,[4] or Kaplan.[5]. It will suffice at this time to state that the test is performed with ten dilutions of spinal fluid in 0.4% NaCl. solution, the dilutions ranging from 1/10, 1/20, 1/40, etc., to 1/5120, to each of which 5 c.c. of a preparation of gold colloid is added. The intensity of the reaction is read according to the amount of color change ensuing. The colloidal gold solution is cherry red in color, and the change in color due to partial precipitation, runs through red blue, blue red, blue, pale blue or lavender, to colorless, when all the gold has been precipitated. These changes are charted by numbers, the red unchanged fluid being designated by 0, the colorless solution by 5.

As stated above, the tests on which this paper is based were performed with cerebrospinal fluids obtained post mortem. One wonders at once if the results obtained with these post-mortem fluids are analogous to results obtained with spinal fluids obtained ante mortem. We discussed this question in another paper,[6] and concluded that the evidence showed that: "The gold sol test has the same value in the examination of cerebrospinal fluid obtained post mortem from the lumbar region as ante mortem, and the results may be similarly interpreted for diagnostic purposes." Many of the cases discussed in that consideration are included in the present series.

The point to which we wish to call especial attention in this communication is that the reaction of the colloidal gold solution may vary in the fluids from the same case taken from different loci of the cerebrospinal fluid system. Thus the fluid from the lumbar region may differ in its reaction with the gold sol, thereby proving a difference in the albumin content, from the fluid obtained from the third ventricle, which in turn may differ from the fluid of the lateral ventricles or subarachnoid space, and these fluids may each differ from one another. Such a difference is not invariable, for the reaction may be negative in several loci, and fluids from the different loci may give the same positive reaction.

There are 28 cases in which the fluid has been obtained and examined from more than one locus. In 24 of these 28 cases the reaction differed in fluids from the same case obtained from different loci; in 4 cases the results were identical. In two cases the reaction was identical in two loci, while differing in other loci; in five more the reaction in two loci was very similar but differed from that obtained in other loci of the same case.

Three cases (Nos. S. B. I. 1914. 58, 87, and 76) may be cited as striking illustrations. The spinal fluid obtained from the lumbar region in No. S. B. I. 1914, 58 gives the "paretic reaction," *as did the ante-mortem spinal fluid*, and general paresis is the diagnosis confirmed by post-mortem examination. The fluid from the third ventricle gives a strikingly different reaction.

Spinal fluid.....	5	5	5	5	5	5	5	5	4	3
Third ventricle.....	0	1	2	2	3	3	2	2	1	0

The spinal fluid from No. S. B. I. 1914. 87, another case of clinical general paresis, again gives the "paretic reaction," but the fluids from the base of the brain, subdural space and third ventricle each give different reactions, becoming less marked in that order.

Spinal.....	5	5	5	5	5	4	4	4	3	2
Base of brain.....	3	3	3	4	4	5	2	2	1	1
Subdural space.....	3	3	3	2	2	2	1	0	0	0
Third ventricle.....	0	0	0	1	1	0	0	0	0	0

That such a difference in reaction from the different loci is not characteristic in general paresis, or that the fluid in the third ventricle necessarily gives a slighter reaction than the spinal is proved by the following examples. No. S. B. I. 1915.1 gives the typical reaction with fluid obtained both from the base of the brain and subdural space.

Base of brain.....	5	5	5	5	5	5	5	5	5	4
Subdural space.....	5	5	5	5	5	5	5	5	5	4

No. S. B. I. 1914. 75 shows the "paretic reaction" with the spinal and subdural fluid and an almost identical reaction with the fluid from the third ventricle.

Spinal.....	5	5	5	5	5	5	3	0	0	0
Subdural.....	5	5	5	5	5	5	5	4	3	2
Third ventricle.....	3	5	5	5	5	5	3	2	0	0

No. S. B. I. 1914. 75 (not included in this series as fluid obtained but from one locus) shows that the fluid from the third ventricle may give

a reaction of the fullest intensity. This again is a case of general paresis.

Third ventricle.....	5	5	5	5	5	5	5	5	5	5

No. S. B. I. 1914.76, a hydrocephalic imbecile with cerebrospinal tuberculous meningitis, gives with the fluid from the lateral ventricles and base of the brain reactions which, while differing from each other, are such as have been described as being found in tuberculous meningitis. The spinal fluid gives a very different reaction.

Lateral ventricle.....	0	0	±	2	2	2	1	0	0	0
Base of brain.....	0	0	0	0	0	1	2	2	1	0
Spinal.....	1	1	1	1	1	1	1	2	2	3

From a perusal of all the cases it is seen that in some instances the reaction is stronger in one locus, in other cases a different locus gives the greater reaction so that there is no definite rule to be observed, unless the rule that chemical differentiation is characteristic of many fluids.

These differences in reaction in different loci prove that there is a difference in the albumin content of the fluids obtained from the several loci. This difference is qualitative and not merely quantitative, for the reaction as here obtained does not depend so much on the quantity of albumin present as on its composition; thus the reaction in its intensity or the dilution in which it occurs does not depend on the amount of albumin precipitated by trichloracetic acid or the amount of globulin precipitated by half saturation with ammonium sulphate, but evidently on the kind of albumin. Such differences of reaction with the fluids from the different loci are of great significance in the clinical application of the Lange test, for in this test the fluid is obtained by ordinary lumbar puncture, and expected to give us information concerning a pathological process at work in a locus often at a distance. But the reaction obtained in the spinal fluid may be very different from that to be obtained from fluid in the cortical region. Thus in general paresis the region of greatest interest is the cerebral cortex; but the fluid examined gives no necessarily true criterion of the condition of the fluid in the situation where the paretic process is at work. Since this is the case, there is reason to suspect that not every case of general paresis will give the same reaction in the spinal fluid. We believe there is sufficient clinical evidence to substantiate this.

Of still greater importance than the matter of the specificity of the Lange test for differential diagnosis is the bearing of the facts here presented on the question of the physiology of the cerebrospinal fluid system. Very little is definitely known as to the direction of flow of the fluid. There is a difference of opinion concerning the communication of fluid from one locus to another. It is stated in Quain's Anatomy that, "All the various subarachnoid spaces from a series of intercommunicating channels, and the fluid they contain is continuous with that of the ventricular cavities by the foramen of Magendie and the foramina of Luschka." Plaut, Rehm and Schottmüller[8] state: "The cerebrospinal fluid of the brain and spinal cord are in free communication with one another. It is to be accepted with great probability that the fluid in the ventricles communicates with the fluid of the subarachnoid space." Other investigators, as Cruveilhier, Reichert, Kölliker, deny the existence of the foramen of Magendie. McIntosh and Fildes, Head and Fearnsides[9] have recently written: "It is doubtful to what extent the ventricular fluid contributes to its (the spinal fluid's) constitution, and we think that it is improbable that this fluid passes directly from the ventricles into the cerebrospinal fluid by way of the foramen of Magendie, even when this exists."

Mestrezat[10] and Kaplan[5] state that in certain cases of icterus where the spinal fluid was discolored yellow by bile pigment it was found at autopsy that the ventricular fluid was clear, showing in these cases that there was no free circulation from the fluid of the cord upward to the fluid of the ventricles.

Several authors have spoken of a difference in the composition of the fluid in different loci such as shown by our results. Thus Mott[11] quotes Sir T. Barlow and Dr. Lees: "Cerebrospinal fluid obtained from any point below the fourth ventricle cannot be a pure secretion; it must contain waste products resulting from cerebral metabolism, for into the subarachnoid space surrounding the brain open the lymphatic sheaths of all the cerebral arteries." In like manner Cushing states: "There are reasons for believing that there may be recognizable differences between the two fluids—ventricular and subarachnoid—under normal, as well as under experimental and therapeutic conditions, owing to the possible accretion to the ventricular fluid of waste substances during its passage through the subarachnoid perivascular and perineuronal spaces." And again: "Fluid secreted by the plexuses is not the same in composition as that contained in the cerebrospinal spaces, in view of the probable increment it must receive from these perivascular lymphatics." Cushing in the same article reports that Jacobson has shown that, "Comparative studies of the spinal and ventricular fluid show that there is a slightly higher percentage of sugar in the ventricular than in the subarachnoid fluid, whereas the reverse is true of the albumen content." And he further reports an instance where the Wassermann reaction in the blood serum and spinal fluid was negative, but positive in the ventricular fluid.

It is an unsolved question how much adhesions have to do with this difference in composition of the fluids from the different loci of the same case. Southard[13] showed that in syphilitic meningitis the adhesions might form compartments and thus cause to result a difference in

the cellular content above and below such adhesions. In the majority of the cases seen at autopsy in the hospitals for the insane there is some evidence of thickening of the meninges, and there might well be such adhesions.

Our work with the colloidal gold test demonstrates that the composition of the cerebrospinal fluid in the various cisternae and spaces of the cerebrospinal axis may differ, and that therefore in all probability there is not a free circulation or exchange of the fluid. We have further proved that the examination of the albumin content of cerebrospinal fluid obtained by lumbar puncture is not in all cases a true indication of the condition existing higher up. What is true of albumin is probably true of other substances, particularly the Wassermann reaction, as the Wassermann bodies are probably contained in the globulin.

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LOCUS.	1/10	1/20	1/40	1/80	1/160	1/320	1/640	1/1280	1/2560	1/5120	
Spinal fluid	0	0	0	1	2	2	±	0	0	0	B. S. H., 1914.
Third ventricle	0	0	0	0	0	0	0	0	0	0	Pellagra.
Spinal fluid	3	2	2	2	1	1	±	0	0	0	B. S. H., 1914.34.
Third ventricle	0	0	1	3	3	2	2	1	0	0	Paranoid condition, of dementia precox.
Spinal fluid	3	4	4	4	3	2	2	2	1	1	B. S. H., 1914.35.
Third ventricle	0	1	2	2	2	2	2	1	0	0	Organic dementia. Arterio sclerotic.
Cerebral subarachnoid	0	0	0	0	0	0	0	0	0	0	S. B. I., 1914.55.
Third ventricle	0	0	0	±	±	2	2	1	1	0	Cerebral arteriosclerosis.
Spinal fluid	5	5	5	5	5	5	5	5	4	3	S. B. I., 1914.58.
Third ventricle	0	1	2	2	3	3	2	2	1	0	General paresis.
Spinal fluid	1	1	1	1	1+	1	1+	2	3	3	S. B. I., 1914.76.
Lateral ventricle	0	0	±	2	2	2	1	0	0	0	Hydrocephalus - tuberculous cerebrospinal meningitis.
Base of brain	0	0	0	0	0	1	2	2	1	0	..
Lumbar spinal fluid	2	3	4	5	5	5	5	5	4	3	S. B. I., 1914.79.
Cervical spinal fluid	1	2	3	4+	5	5	5	4+	3	1	Glioma.
Third ventricle	0	0	±	1	1	1+	3	3	2+	2	
Spinal fluid	5	5	5	5	5	5	3	0	0	0	S. B. I., 1914.75.
Cerebral subarachnoid	5	5	5	5	5	5	5	4	3	2	General paresis.
Third ventricle	3	5	5	5	5	5	3	2	0	0	
Spinal fluid	1+	2	2	3	2	1	±	0	0	0	S. B. I., 1914.79.
Lateral ventricle	0	0	0	0	0	1	2	1	±	0	General paresis.
Cerebral subarachnoid	±	±	1	1	1	2	2	±	0	0	
Cerebral subarachnoid	0	0	0	±	±	0	0	0	0	0	S. B. I., 1914.82.
Base of brain	0	0	1	2	2+	±	±	0	0	0	
Third ventricle	0	0	0	±	1	2	1	0	0	0	Imbecile.
Spinal fluid	5	5	5	5	5	4+	4+	4	3	2	S. B. I., 1914.87.
Cerebral subarachnoid	3+	3+	3+	2	2	2	1	±	±	0	General paresis.
Base of brain	3	3	3	4	4	5	2	2	1+	1	
Third ventricle	0	0	0	1	1	0	0	0	0	0	
Spinal fluid	3	2+	2	2	2+	4	1	0	0	0	S. B. I., 1914.88.
Cerebral subarachnoid	3+	4	5	2+	2+	1	1	0	0	0	General paresis.
Third ventricle	1	2	1	1	0	0	0	0	0	0	
Cerebral subarachnoid	0	0	0	0	0	0	0	0	0	0	S. B. I., 1914.90.
Third ventricle	0	0	±	±	1+	2+	2	1+	1	1	Dementia precox.

LOCUS.	1/10	1/20	1/40	1/80	1/160	1/320	1/640	1/1280	1/2560	1/5120	
Cerebral subarachnoid..	0	0	0	0	0	3	3	3	0	0	S. B. I., 1914.91.
Third ventricle.....	2	2	2	3	3	4	4	3+	3	2	Chronic dementia.
Base of brain.....	4	4	2	3	2	2	2	5	5	5	(Acute pachymeningitis.)
Cerebral subarachnoid..	1	1	1	1	2	2	3	0	0	0	S. B. I., 1914.93.
Epicerebral.....	0	0	0	0	0	2	2	0	0	0	Manic depressive insanity.
Base of brain.....	4+	5	5	5	5	5	5	4+	1	1	S. B. I., 1914.92.
Lateral ventricle.....	3	5	5	5	5	3	0	0	0	0	Arteriosclerotic dementia.
Cerebral subarachnoid..	3	3	3	3	3	3	3	3	1	1	
Spinal fluid.....	0	0	0	±	1	2	1	0	0	0	S. B. I., 1915.2.
Base of brain.....	0	0	0	±	2	1	0	0	0	0	Korsakow's polyneuritic
Cerebral subarachnoid..	0	1	2	3	3	1	1	3	2	1	Psychosis.
Epicerebral.....	0	0	0	0	±	±	0	0	0	0	
Third ventricle.....	0	1	1	1	5	5	4	2	1	1	
Base of brain.....	±	1	1+	1	±	0	0	0	0	0	S. B. I., 1915.3.
Third ventricle.....	0	0	0	0	0	0	0	±	1	1+	Chronic internal hydrocephalus.
Left lateral ventricle...	0	0	1	1	1	1	0	0	0	0	Brain abscess.
Right lateral ventricle..	0	0	0	1	1	0	0	0	0	0	
Spinal fluid.....	0	0	0	±	1	0	0	0	0	0	S. B. I., 1915.4.
Base of brain.....	0	0	0	±	1+	1	0	0	0	0	Senile dementia.
Epicerebral.....	0	0	0	0	0	0	0	0	0	0	
Third ventricle.....	0	0	0	0	1+	2	1+	0	0	0	
Spinal fluid.....	0	0	0	±	1	2	1	0	0	0	S. B. I., 1915.5.
Base of brain.....	0	0	0	0	0	0	0	0	0	0	Manic-depressive insanity.
Cerebral subarachnoid..	0	0	0	0	0	0	0	0	0	0	
Third ventricle.....	0	0	0	0	0	1	1	2	1	1	
Spinal fluid.....	0	0	0	0	0	0	0	0	0	0	S. B. I., 1914.66.
Third ventricle.....	0	0	0	0	0	0	0	0	0	0	Multiple sclerosis.
Base of brain.....	5	5	5	5	5	5	5	5	5	4	S. B. I., 1915.1.
Cerebral subarachnoid..	5	5	5	5	5	5	5	5	5	4	
Spinal fluid.....	0	0	0	±	±	0	0	0	0	0	S. B. I., 1914.80.
Cerebral subarachnoid..	0	0	0	0	±	±	±	0	0	0	Arteriosclerosis.
Third ventricle.....	0	0	0	±	1	2	1	0	0	0	
Spinal fluid.....	0	0	0	1	2	±	0	0	0	0	S. B. I., 1914.83.
Third ventricle.....	0	0	0	0	1	2	0	0	0	0	Epilepsy.
Spinal fluid.....	0	0	0	1+	1+	1	0	0	0	0	S. B. I., 1914.84.
Third ventricle.....	0	0	0	0	1	2	1	1	0	0	Manic depressive insanity.
Base of brain.....	0	±	1	2	2	1	1	0	0	0	S. B. I., 1914.85.
Cerebral subarachnoid..	±	1	1+	2	2+	2	2	1+	1	0	Cerebral arteriosclerosis.
Third ventricle.....	0	0	1+	1	0	0	0	0	0	0	
Base of brain.....	0	0	1	1	2	3	1	±	0	0	S. B. I., 1914.86.
Third ventricle.....	0	0	0	0	2	1	0	0	0	0	Chronic mania.
Cerebral subarachnoid..	0	0	0	0	0	1	1	0	0	0	
Base of brain.....	0	0	0	±	±	0	0	0	0	0	S. B. I., 1914.70.
Third ventricle.....	0	0	0	1	1	±	0	0	2	0	Chronic dementia.

A STUDY OF LEPROSY: WITH ESPECIAL REFERENCE TO THE PULSE AND TEMPERATURE.

BY JAMES A. HONEIJ, M.D., BOSTON.

From Penikese Hospital and the Department of Bacteriology, Harvard University Medical School.

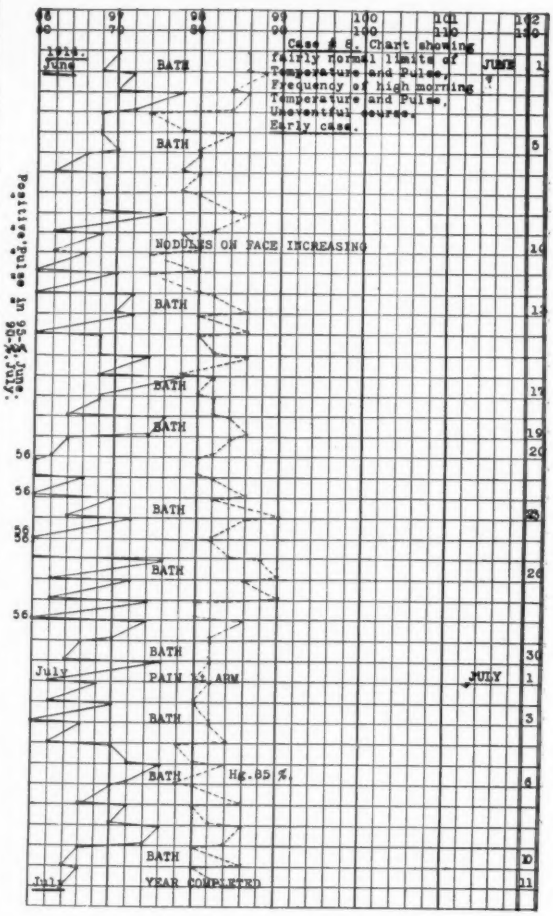
(Continued from page 584.)

CASE 7. S. G. Sex, male. Age, 70. Social state, married. Nationality, Russian Jew. Resident in United States, 15 years. Resident at Penikese, 5 years. Diagnosis of leprosy made 6 years ago. Type of disease, mixed (?). Stage of disease, slowly active. Most common lesions, ulcers. Dispensary attendance, frequent. Symptoms most marked, pain, diarrhea, throat. One "toxic-febrile" attack. Activities of patient, none. Disposition, good, apprehensive. Prognosis, unfavorable. Remarks, mouth, throat, bowels and bladder are troublesome. Weak heart.

Several factors other than leprosy influence the chart of this patient. The patient is 70 years of age, has cardiac disease and fairly frequent attacks of diarrhea. He is also of a neurotic temperament. Rise of temperature in this case was rarely followed by any abnormal increase of

pulse rate. During the first four months under observation, marked rise of temperature, often of 4 degrees or more, occurred during attacks of diarrhea, accompanied by an increase in pulse rate of only 10 to 18 beats per minute. During the first few months the temperature was often elevated and very irregular. The two curves do not run parallel and the pulse curve is insignificant compared with that of the temperature. From November to April the temperature at evening was somewhat above normal and in the morning most frequently 97° and less. During this same period, however, the pulse irregularity with its frequent high exacerbations, is most striking. The pulse curve now exceeds that of the temperature; whereas, previous to November, the temperature curve was above that of the pulse. During the last four months, when both temperature and pulse curves were within fairly normal limits, the "morning pulse" increase was marked. For the first four months this appeared as much as 31% of the time, for the following four months 40+%, and for the last four months 62%. Comparing the last period with the first, we find that the disease has run a more even course, with fewer lesions, slight and short attacks of diarrhea, and with but slight disturbances. This agrees with the temperature and pulse curves and, still more important, with the "morning pulse" increase, which is especially noticeable during the last three months, being recorded 71+% of the time. During the whole year the patient has had one "toxic-febrile" attack with chills. He has grown feeble and has lost some weight.

CHART NO. 8.


Case # 8. Chart showing fairly normal limits of Temperature and Pulse. Frequency of high morning Temperature and Pulse. Uneventful course. Early case.
BATH
NODULES ON FACE INCREASING
PAIN ½ ABM
Hg. 85 %
YEAR COMPLETED
H.K.

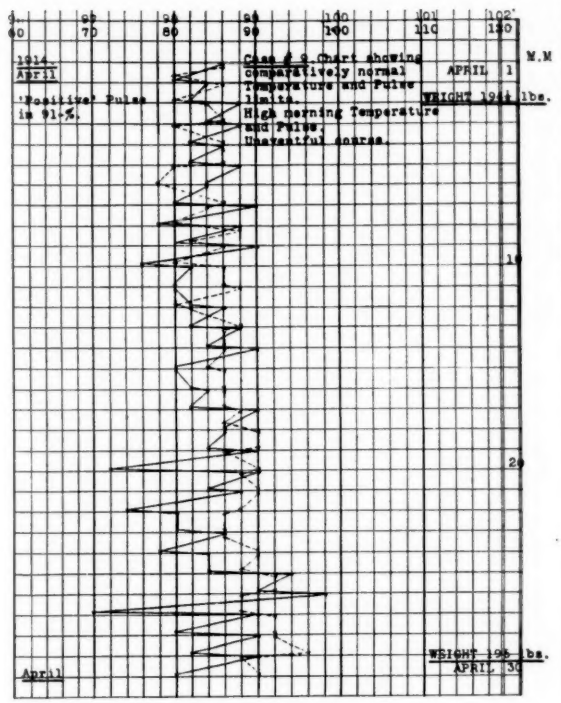
CASE 8. H. K. Sex, male. Age, 27. Social state, single. Nationality, Russian Jew. Resident in United States, 8 years. Resident at Penikese, 1 year. Diagnosis of leprosy made 1 year ago. Type of disease, tubercular. Stage of disease, early. Condition of disease, slowly active. Most common lesions, bullae, ulcers, small tubercles. Dispensary attendance, infrequent. No "toxic-febrile" attacks. Activities of patient, light housework, little gardening and fishing. Disposition, good. Prognosis, favorable. Remarks, left eye troublesome, throat occasionally.

This is an early case and has been under observation for less than a year. The temperature and pulse have been within fairly normal limits for leprosy and have shown occasional slight irregularities. The disease so far has run an uneventful course. The chart shows the typical "morning pulse," which is also at intervals subnormal in the evening. An interesting point is the relative frequency of the higher morning temperature which occurs 30% of the time, and also that of the "morning pulse," which is present during the whole nine months, 80%. The patient has gained in weight.

CASE 9. M. M. Sex, female. Age, 52. Social state, married. Nationality, Portuguese. Resident in United States, 10 years. Resident at Penikese, 5 years. Diagnosis of leprosy made 5+ years ago. Type of disease, anesthetic. Stage of disease, first, latent. Condition of disease, latent(?). Most common lesions, ulcers and blebs due to burns. Dispensary attendance, seldom. Symptoms most marked, none. One slight "toxic-febrile" attack. Activities of patient, cooking, light housework, walking. Disposition, excitable, irritable. Prognosis, favorable. Remarks, patient in excellent physical condition.

In this case the temperature and pulse remained within comparatively normal limits. With the exception of one chill during the year, which was accompanied by an elevation of temperature and pulse of 102° and 116, the patient has presented no acute symptoms or active lesions peculiar to leprosy. The pulse exacerbations were in all cases due to an excitable temperament. The chart for the year shows no differences from month to month. The temperature ranges between 98° and 99°, infrequently more than 99°. The pulse readings average between 80 and 90 for the twelve months. The temperature fall at night occurs for at least one-fourth the whole period and the pulse at least three-fourths of the time. A comparison between this case and Cases 7 and 4 is interesting. The patient has lost weight slightly; but, being extremely heavy, the loss in weight is considered a normal fluctuation. The patient is about to be discharged.

Chart No. 9.



Case 10. J. N. Sex, male. Age, 30. Social state, single. Nationality, English. Resident in United States, 12 years. Resident at Penikese, 7 years. Diagnosis of leprosy made 10 years ago. Type of disease, tubercular. Stage of disease, advanced. Condition of disease, rapidly progressive. Most common lesions, ulcers, pustules, bullae, swollen glands. Dispensary attendance, frequent. Symptoms most marked, chills, pain, throat. Several "toxic-febrile" attacks. Activities of patient, none. Disposition, depressed, dissatisfied. Prognosis, unfavorable. Remarks, patient had all lesions and symptoms of leprosy. Died August, 1913.

This patient was under observation only one month when he succumbed to complications occurring in the course of the disease. The case is of interest because the chart shows the "morning pulse" on the greater number of days, also a marked difference in morning and evening rate. The pulse rate averaged between 90 and 100, and the temperature, which was more often lower in the evening than in the morning, was more frequently 97° than 98° or more. The temperature and pulse for the three days previous to death averaged as follows: temperature 95.1°, pulse rate 70; lowest temperature 94.2°, pulse rate 60.

Case 11. L. P. Sex, female. Age, 35. Social state, single. Nationality, Lettish. Resident in United States, 16 years. Resident at Penikese, 7 years. Diagnosis of leprosy made 7+ years ago. Type of disease, tubercular. Stage of disease, fairly active, progressive. Most common lesions, bullae, ulcers, swelling of glands, etc., marked induration, nodules. Dispensary attendance, frequent. Symptoms most marked, pain, headache, swelling, chills. One severe, one slight "toxic-febrile" attack. Activities of patient, very active in gardening, washing, housework, cooking. Disposition, depressed, morbid. Prognosis, unfavorable. Remarks, typical tubercular "leonitic" case. Throat troublesome at times.

In this case a greater fluctuation of pulse was seen than in the temperature. The variation of the temperature occurred in periods rather than daily, whereas the pulse showed a greater daily variation. From July to the first half of December and during the "toxic-febrile" attack, the pulse bore a fair relationship to the temperature, although the pulse tended to predominate. This became more evident from January to May, distinctly more so from May to July. The average pulse rate for the last three months was at least 10 beats higher, although the irregularity was not so noticeable. During the whole twelve months the patient had one severe "toxic-febrile" attack, accompanied by great swelling of arm and glands, pain, fever and despondency; and a second slight attack four months later. The whole chart is typical and bears out the opinion that progress of the disease can be studied in most, if not in all, the cases by this means. The most striking points are the gradual predominancy of the pulse, the increase in rate, the high percentage of "morning pulse" rises which occur during 70% of the whole period and 75+% for the last four months, the typical reaction during a "toxic-febrile" attack or after severe exertions, and the fall of temperature in the evening, which is found one-fifth of the time. The patient is strong and active and has gained in weight, although a considerable loss of weight is recorded after attacks.

Case 12. F. P. Sex, male. Age, 47. Social state, married. Nationality, Portuguese. Resident in United States, 23 years. Resident at Penikese, 9 years. Diagnosis of leprosy made 10+ years ago. Type of disease, tubercular. Stage of disease, last,

Chart No. 11.

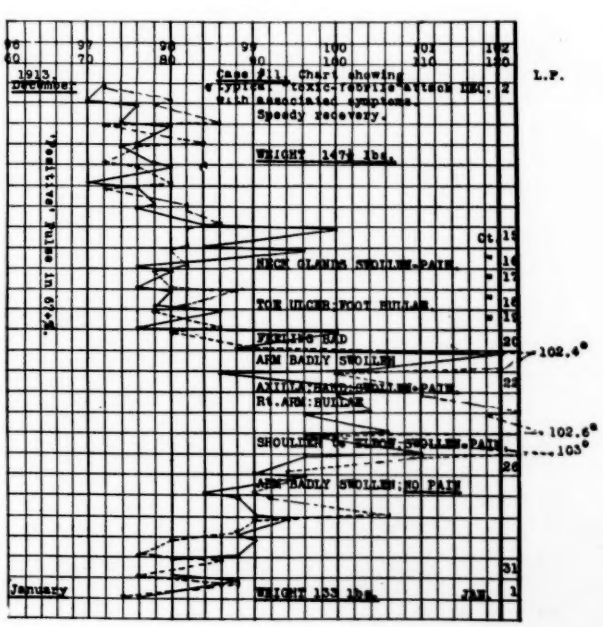
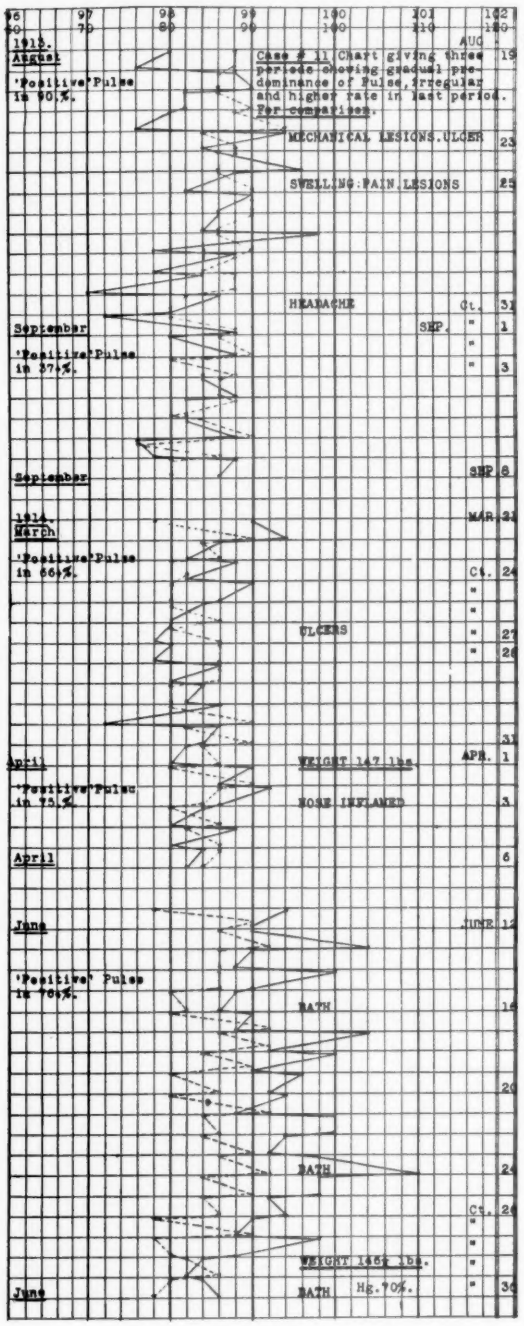


CHART No. 11 (continued).



advanced. Condition of disease, active. Most common lesions, ulcers, swollen glands, etc. Dispensary attendance, constant. Symptoms most marked, chills, pain, swellings, throat, diarrhea. One severe, two slight "toxic-febrile" attacks. Activities of patient, none. Disposition, good. Prognosis, bad. Remarks, patient is in final stages of the disease, mutilation severe.

This patient is in the most advanced stage of the disease. Lesions are numerous and his reactions are severe. Very slight disturbances result in an elevation of temperature and an increase in pulse rate (see chart). This rise of temperature and pulse curve was partly the result of shock, caused by a fall from a chair—the patient being blind. The average temperature was high for the first four months; markedly decreased during the next four months and again increased in the last period. During the last eight months the pulse has been more predominant, showing frequent elevations without similar increase in temperature. The "morning pulse" is fairly typical but is somewhat obscured by the constant reactions. The interrupted course of such an advanced case cannot be expected to reveal the same high percentage of this phenomenon as a chronic case with a regular temperature and pulse. The average number of days in which this "morning pulse" occurred during the whole period was 66+%, and during the last four months 80%, when the course of the disease was more regular and presented practically no reactions. The patient is markedly anemic, hemoglobin index rarely exceeding 40%. The patient lost considerable weight during the year.

CASE 13. W. Q. Sex, male. Age, 38. Social state, single. Nationality, Chinese. Resident in United States, 14 years. Resident at Penikese, 1 year. Diagnosis of leprosy made 2+ years ago. Type of disease, macular, tubercular. Stage of disease, early. Condition of disease, questionably active. Most common lesions, pustules, enlarged glands. Dispensary attendance, fairly regular. Symptom most marked, pain. No "toxic-febrile" attacks. Activities of patient, light housework, little gardening and fishing. Disposition, good, apprehensive. Prognosis, favorable. Remarks, patient has improved considerably.

No chart among these cases shows better the improvement of the patient. During the first

CHART No. 12.

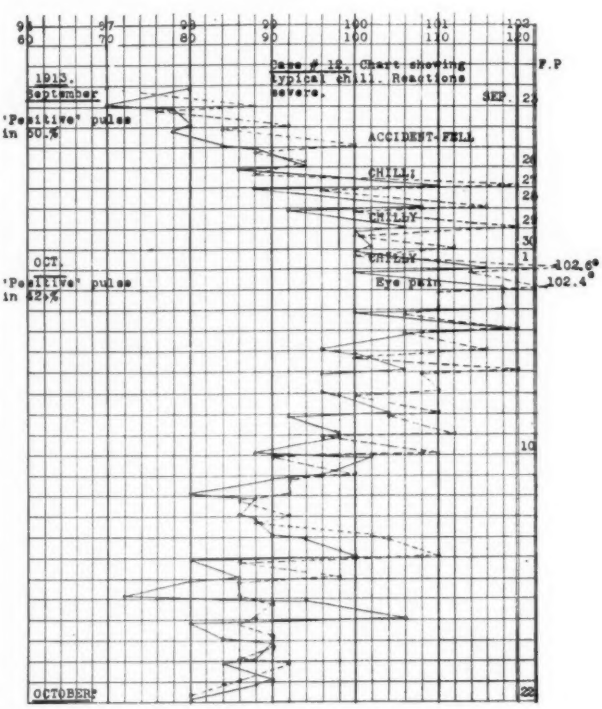
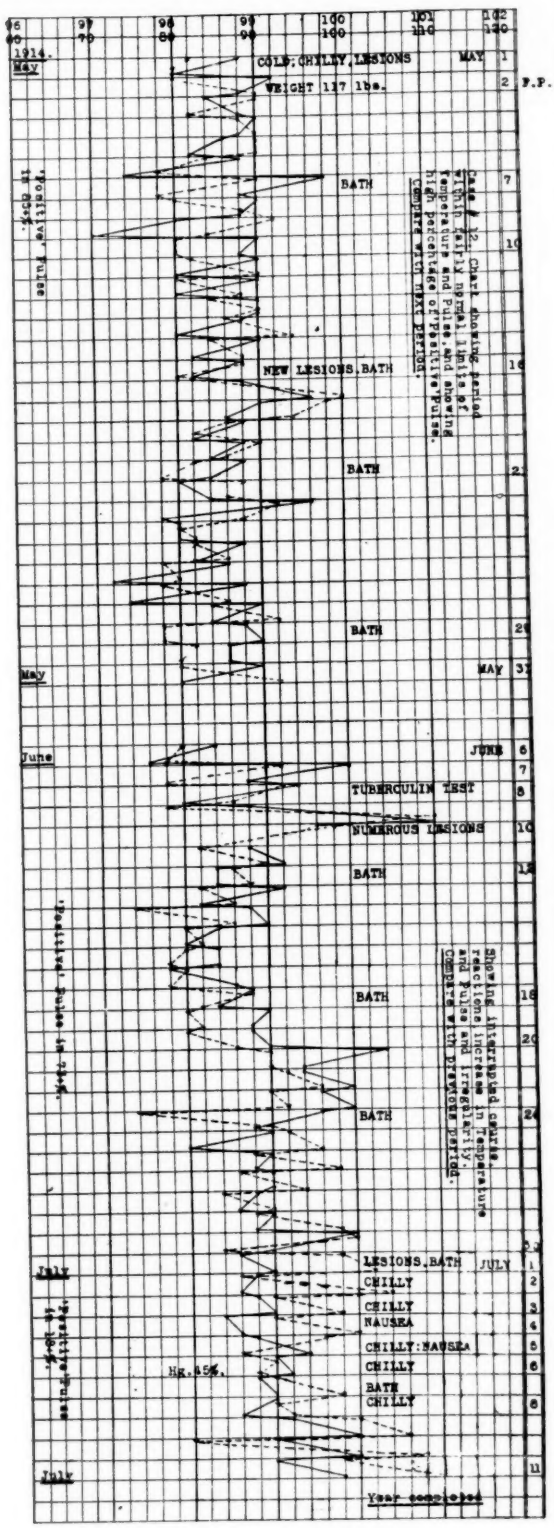
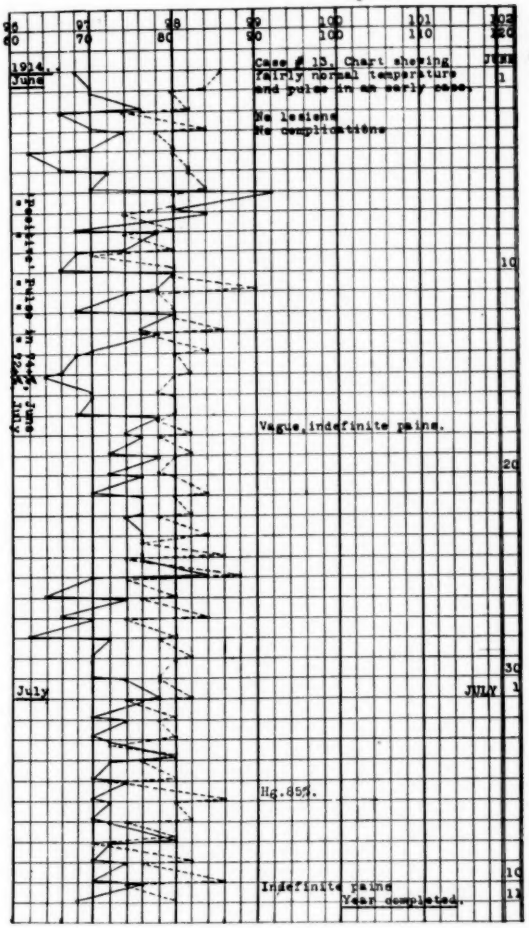


Chart No. 12 (continued).



two months the average daily temperature and pulse were highest and the daily remissions most marked; the last four months the temperature and pulse were nearly normal. The latter bore a more normal relation to the temperature. The patient has had no acute exacerbations and but slight reactions. The first five months showed

Chart No. 13.

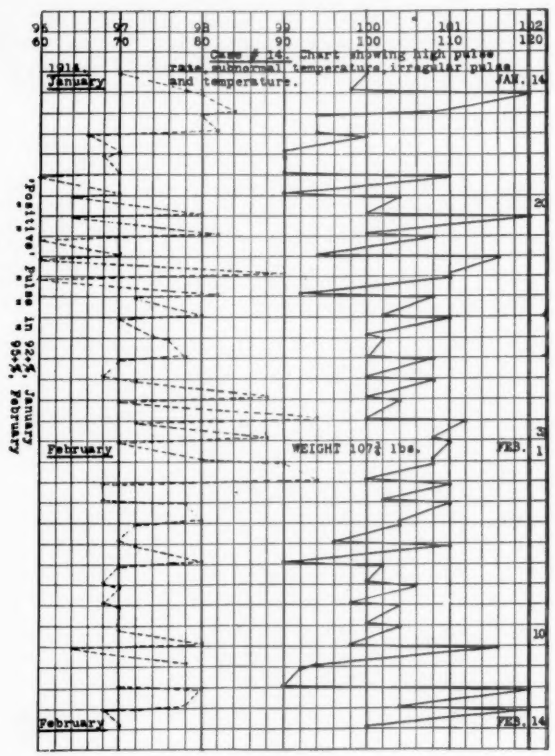


the lowest percentage of "morning pulse" rises, an average of 38%; the last eight months an average of 63+%. There is an evening fall in temperature in less than 1% of the whole time. During the whole period the temperature has never exceeded 100°, and reached this figure only three times. The pulse rate in only five instances exceeded 100 and exceeded 90 only eight times during the last five months. The case is interesting because the chart clearly demonstrates the improvement of the patient. The patient has not lost in weight.

Case 14. A. T. Sex, male. Age, 22. Social state, single. Nationality, English. Resident in United States, 12 years. Resident at Penikese, 5 years. Diagnosis of leprosy made 6 years ago. Type of disease, tubercular(?), mixed. Stage of disease, advanced. Condition of disease, progressive, active. Most common lesions, ulcers, swellings, bullae, marked induration. Dispensary attendance, regular. Symptoms most marked, pain, swelling, fatigue. No "toxic-febrile" attacks. Activities of patient, indoor activities, amusements. Disposition, good, nervous. Prognosis, unfavorable. Remarks, patient has failed rapidly. Throat, nervous. Weak heart.

At first sight the chart demonstrates three points: a pulse rate out of all proportion to the temperature; a low, if not subnormal tempera-

CHART NO. 14.



ture; and a daily, as well as a periodical, irregularity both in the temperature and pulse. Three main factors are responsible, namely, leprosy in an advanced stage, a cardiac lesion and a highly nervous temperament. The contrast is most marked when compared with Case 13. A comparison with Case 7, which is also a cardiac case, shows that that lesion is not alone responsible. That nervous influences alone are not of sufficient importance to produce such a condition of the pulse is best proved by a comparison with Case 9. This case has run a chronic course with no marked exacerbations or serious disturbances and should show a high percentage of the "morning pulse" during the whole course. This phenomenon occurred three-fourths of the whole time. The case is, therefore, typical and bears out the suggestions which this paper presumes to present. A study of all the charts will indicate more precisely the value of this case. Patient has not lost weight, although there has been considerable fluctuation from month to month.

In leprosy the lesions are due to the presence of bacilli-laden endothelial leucocytes in the vessel wall, which may in consequence be considerably thickened. Vessels in time may show much thickening of the walls and narrowing of the lumen (Mallory, Dohi, Marchoux). Jadassohn states that the changes begin in the vessels with infiltration of the walls. Authorities agree that degeneration of the nerves occurs (Sorel), motor paralysis, loss of sensation and hyperesthesia are frequent, while headache, neuralgia, "rheumatic" pains, neurasthenia, all indications of nerve involvement are common. The presence of erythema, macular areas, local swellings, etc. (Darrier) are all evidence of the existence of vasomotor and peripheral circulation disturbances. The skin is infiltrated and shows in almost every case areas of induration. Atrophy of highly differentiated cells results, smooth and striated muscle cells disappear and connective tissue takes its place (Mallory).

Jadassohn believes that apart from mechanical disturbances, which the bacillus of leprosy causes, the endotoxin or toxin effect plays an important part. This he concludes logical, as the circulation is through organs that are heavily infected (Sugai, Bayon). The bacilli are in the blood stream (Rabinowitsch, Crow, Stephan) and probably more abundant during febrile attacks. It seems a matter of little doubt that this must have some effect on the heart and circulatory system.

The sudden and sometimes continued rise in temperature and pulse rate after exercise, as seen in leprosy, could be accounted for by the elimination of toxins into the blood streams as in tuberculosis (Paterson). It is known that the temperature of the blood exerts a powerful influence on the heart. It is also accepted that changes in composition or properties of the blood affect the pulse rate. Now if we consider the pathology of the circulatory system in leprosy, with the presence of bacilli in such enormous quantities in all lesions—greater probably than in any other disease (Bayon)—and are aware that the bacilli are found in the blood stream (Rabinowitsch, Stephan, Crow, Honeij) it is logical to believe that the bacilli of leprosy and their toxins are the cause of the symptoms occurring in the course of the disease. This is believed true of smallpox and pneumonia, specific marasmus (Kaufman) and other infectious diseases (McCrae).

The "toxic-febrile" attacks of leprosy with chills and other symptoms so characteristic of an infection, are undoubtedly results of the action of pathogenic bacteria in the skin lesions (streptococci, staphylococci). The cause of death in leprosy is due in the majority of cases to secondary infections. Therefore, it can be concluded that the whole train of phenomena of fever, nervous disturbances and chills denotes the action of toxin. In articles on lobar pneumonia (Musser and Norris) these statements appear: "The chill corresponds to time at which large doses of toxin are absorbed into the system" and that "rigor represents the period at which general systemic infection takes place."

In presenting a paper of this nature along original lines and in a disease so complex as leprosy, there are many difficulties to be overcome and in the discussion much is included that may give rise to valuable criticism. In leprosy there has been a conspicuous lack of clinical data, investigators apparently accepting it for granted that the disease presented no "symptom complex" different from other chronic diseases.

The intention of the writer was, therefore, to submit the results of a study of two years duration covering clinical observations on the temperature and pulse in the hope of demonstrating changes in the chart picture which would be diagnostic and prognostic of leprosy.

A good many of the facts observed in leprosy stated in these pages may be equally true from a physiological standpoint, such as the effect of rest or exercise on the pulse rate. The opinion of the effect of toxin in leprosy is equally true of other diseases, but as far as I am aware, no disease presents the picture as outlined at the very beginning of this paper. I have also been unable to find any references on leprosy that consider at all the clinical chart of the disease. Observers persist in presenting the outward manifestations (Abraham, Jadassohn, Stelwagon, Goodhue, Dyer).

The following points are presented for consideration:—

1. Leprosy is an infection by a specific organism capable of causing marked changes and capable by itself of producing suppuration (Gurd, Honeij).

2. Surface lesions are constantly associated with secondary infecting organisms,—streptococci, staphylococci and other bacteria (Biehler). These are in large part the cause of sloughing and disfigurement.

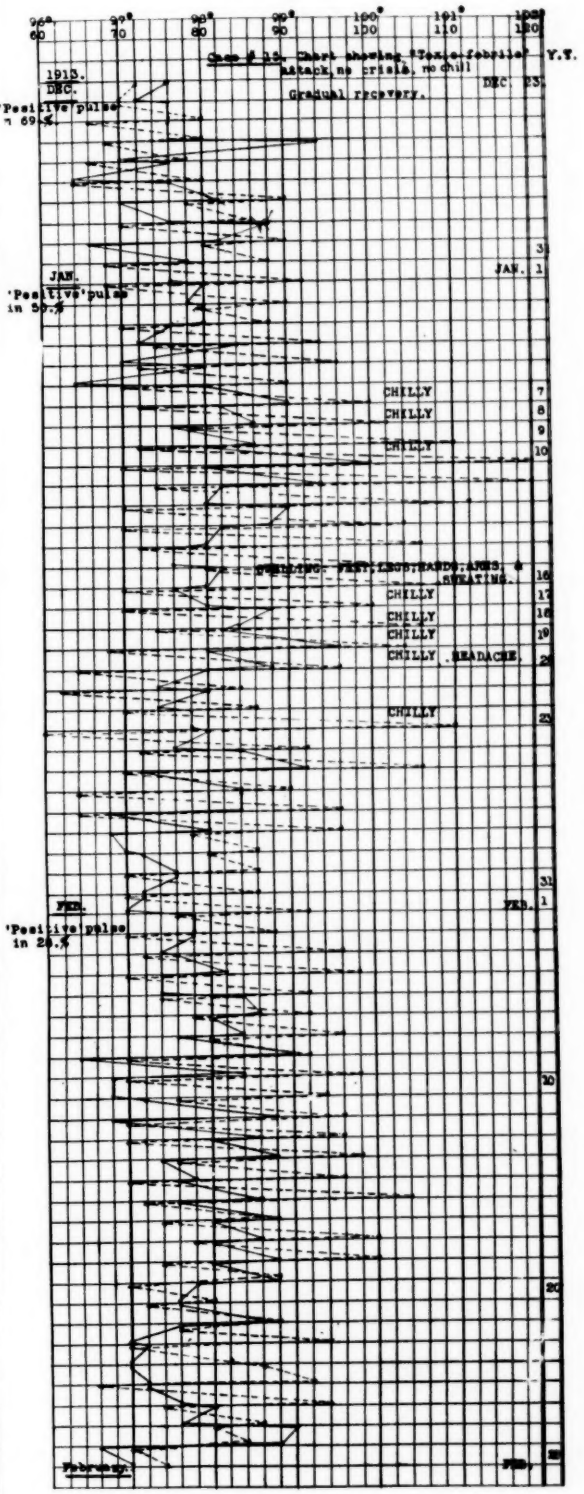
3. Leprosy bacilli are found in the blood stream and not necessarily during febrile periods only. The infection is general. In advanced cases lesions are numerous and bacilli are present in enormous quantities.

4. If toxic substances are present in however minute a quantity, profound infection during the course of the disease will probably be capable of producing sufficient toxin to give rise to the "toxic-febrile" attacks. They occur at irregular intervals depending upon the state of the patient and stage of disease and upon the number of lesions, as well as the presence of secondary infecting organisms. The attacks occur principally in the advanced stage and tubercular form and, from my experience, not in the anesthetic cases. These premises seem logical.

5. The constitutional symptoms produced are fever, rapid pulse, malaise, prostration, headache, pain, nausea, vomiting, chills and nervous disturbances such as anxiety, depression and delirium. This train of phenomena is indicative of an infection.

CASE 15. Y. T. Sex, male. Age, 34. Social state, married. Nationality, Chinese. Resident in United States, 23 years. Resident at Penikese, 9+ years. Diagnosis of leprosy made 10+ years ago. Type of disease, tubercular. Stage of disease, advanced. Condition of disease, active, progressive. Most common lesions, ulcers, swollen glands, discharging bullae and marked induration. Dispensary attendance, frequent. Symptoms most marked, pain, chills, headache, swelling, throat, cough. Number of "toxic-febrile" attacks, several, one severe. Activities of patient, washing, gardening, cooking, amusements. Disposition, good. Prognosis, unfavorable. Remarks, throat is troublesome; has "toe drop"—motor paralysis.

CHART NO. 15.



In this case the irregularity of temperature and pulse throughout the year was most marked. The only regularity of temperature was seen during January in a "toxic-febrile" attack without crisis. Here the "step ladder" increase

of temperature and the recovery by lysis gave a regular rise and fall, similar in some respects to Case 4, but more closely related to Case 5. In the latter the chart shows elevation of pulse and temperature during an attack with crisis and delayed recovery. In this case the pulse did not predominate, as it did in Case 5. The daily variations in temperature were greater for the whole period, but they showed an improvement for the last four months. The reactions during this last period were less severe and temperature and pulse were more nearly parallel and within usual limits. For the first two-thirds of the year the patient showed a condition suggesting general toxemia. There were no distinct chills with crises and no immediate reactions of temperature and pulse. The average number of days in which the "morning pulse" occurred was little over one-half the whole time and for the last four months it was approximately 62% of the time. During the latter period it was more regular and not influenced by secondary infections or serious disturbances. Throughout the twelve months the evening temperature was higher than that of the morning, except in one-half of one per cent. of the time. The average temperature and pulse for three periods of four months each was: T. 98° to 99°, P. 70 to 80; T. 98+° to 99+°, P. 70— to 80—; and T. 97° to 98°, P. 70 to 80. The patient is in an advanced stage of the disease, but has apparently lost no ground since March. There has been considerable loss of weight.

DIFFERENTIAL DIAGNOSIS AS REGARDS CHILLS, TEMPERATURE AND PULSE.

Charts Nos. 11 and 12 present two distinct periods of rise of temperature and pulse. Both cases showed symptoms and associated lesions, which I have termed "toxic-febrile" attacks. These attacks, when typical and severe, usually reach a climax upon the fifth to the tenth or twelfth day after onset. The curve assumes the picture of a "step ladder" until the temperature reaches 103° and pulse rate 120 or more. The descent to normal occurs in the same manner, although recovery is interrupted by frequent secondary exacerbations of periods varying between eight days and three weeks. Chills lasting from 15 to 60 minutes occur without regularity, preceding or during the climax of these attacks. During the period of observation no chills occurred that were not preceded by lesions, usually situated on the arms, hands, legs or feet. These were accompanied by extensive swelling, great tenderness and severe pain. The course of the lesions and accompanying symptoms is exceedingly rapid. The face is often flushed. Headache, nausea, apprehension and other nervous symptoms are usually present, followed by malaise and marked prostration. Pain and swelling later become localized and presently pus is located. These areas of infection, unless opened with evacuation of pus, form ulcers of varying size and depth. The sooner the swelling is localized and opened, the sooner do the symptoms subside. In the year previous to this study, lesions and chills were exceedingly common. Since treatment has been instituted, lesions have been fewer and chills very infrequent. A study of these charts gives fairly conclusive proof that "toxic-febrile" attacks are associated wholly with secondary infecting bacteria. During this period of infection the characteristic appearance of the pulse disappears and the morning increase in pulse or temperature seldom occurs. A typical septic fever is seen in Case 5. This patient first presented severe lesions in both legs and feet. Later numerous pustules occurred over both thighs, buttocks, arms, hands and face, which continued for the better part of a month. There was no question whatsoever as to the part streptococci and staphylococci played here. This case is to be compared with Nos. 11 and 12, where the course is short, less severe, and in which a climax occurs with uninterrupted recovery. Sweating occurs infrequently and irregularly.

In *tuberculosis* chills occur early in the disease, before the rise of temperature, and not infrequently follow sweating.

The following charts, 16 and 17, show the typical temperature and pulse curves of tuberculosis (From the Boston Consumptives Hospital at Mattapan and selected by Dr. E. A. Locke, as being typical cases). The temperature and pulse show a regular rise and fall, with the usual rise at night. In the first case the prevailing average of temperature is 99+°, and in the second 100°. In tuberculosis, fever is not coincident with the rise of pulse rate. It is also believed that an increase in pulse rate of ten degrees and more for each degree of temperature is due to cardiac weakness. In these cases there is a constant difference between morning and evening temperature, and a reversal of high evening temperature in only two instances.

The pulse averages here between 80 and 90, except during high fever, when it is between 100 and 110. For a period of over four months the "morning pulse" is present 15+% of the time in the first case, and 12+% in the second. During the whole course the temperature, not the pulse, predominates. Sweating occurs during the course of the disease.

Chills occur in *malaria* before a rise of temperature. Within three hours a direct rise of temperature takes place from normal to 103° and 104° or more, immediately followed by a drop to normal. The rise of temperature occurs at regular intervals in all simple forms of malaria; pulse is rapid. The pulse, associated with an elevation of temperature in malaria, is always rapid. Sweating follows the attack. These symptoms present no similarity to leprosy.

In *lobar pneumonia* chills occur with the onset of the infection. A rise of temperature follows. The "morning pulse," which occurs in a small proportion of the time, usually shows a

CHART #16. Typical case of Active Tuberculosis.
For comparison with Leprosy cases.

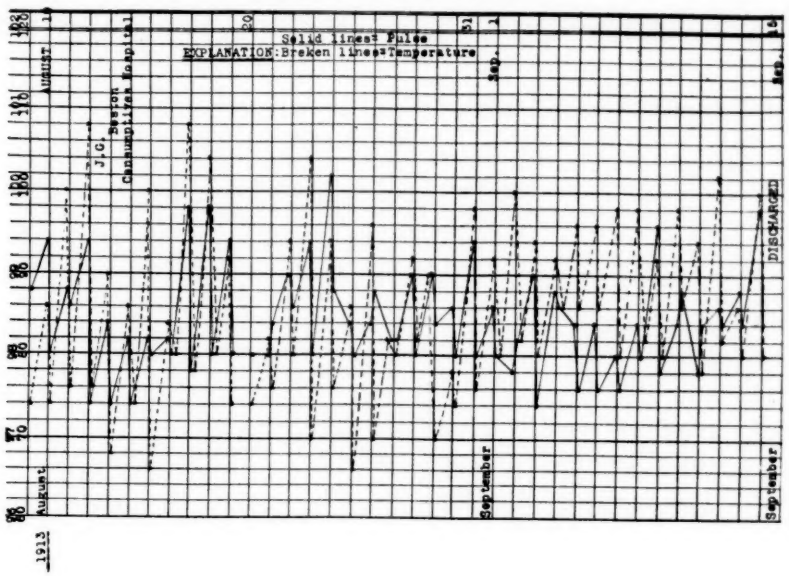
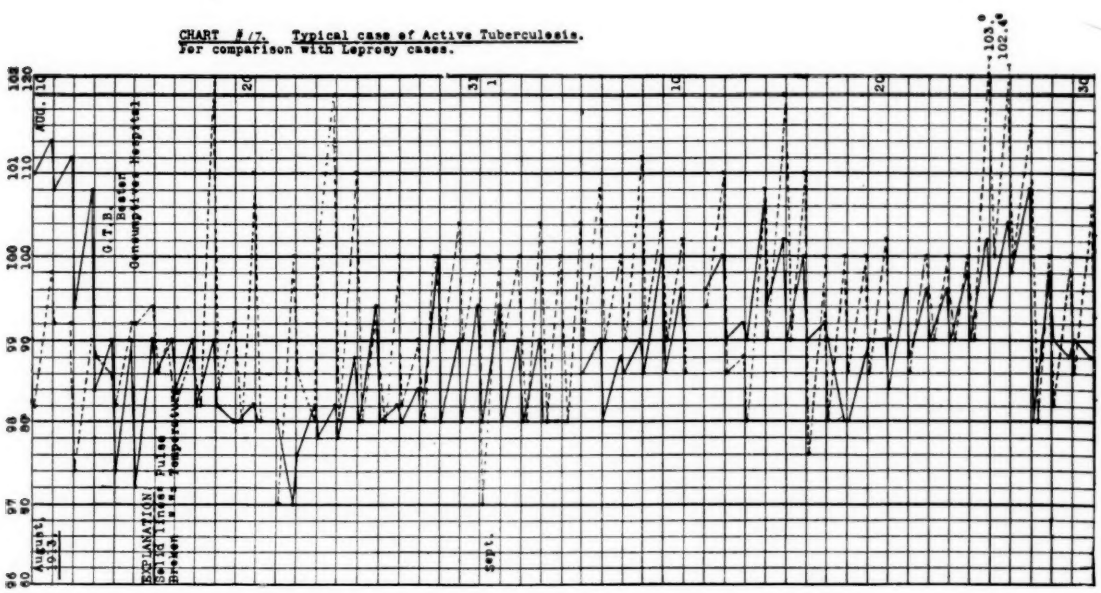


CHART #17. Typical case of Active Tuberculosis.
For comparison with Leprosy cases.



difference in rate of only three or four beats. This is nothing to compare with leprosy.

Erysipelas is ushered in with chilliness or distinct rigor, vomiting and rapid rise of temperature to 104° and 105°. The maximum is reached on the third day. After a few days of continued fever the temperature curve becomes irregular. Marked evening remissions, merging into a remittant or even an intermittent type, may occur. The disease terminates by crisis; or, after a longer febrile period, by lysis. In the latter instance the fever is prolonged and irregular. In no way is there a marked similarity to leprosy.

In *smallpox* chills mark the onset. Temperature rises rapidly to 104° and remains there with slight morning remission for about three days. In severe cases the decline is gradual. Pulse and respiration are increased in proportion to the temperature.

In *glanders* and in septic infections chills occur. Only in this respect is there any similarity to leprosy.

A study of the records of cases at the Boston hospitals shows that in almost all cases other than leprosy, the "morning pulse" phenomenon, when present, was not constant. In none did it occur 50% of the time. In two cases of endocarditis and in one of myocarditis, in two cases of myxedema and in two of acute articular rheumatism, the largest proportion was found. In the following cases it appeared in a fair proportion: chronic nephritis with cardiac involvement, pneumonia, syphilis, psoriasis, eczema. In almost all cases where the "morning pulse" phenomenon occurred, the morning increase was

less than ten beats, generally only three and four beats. In conclusion, the following differential points between leprosy and other infectious processes are to be noted: the "morning pulse" phenomenon, which is found most commonly in cases of cardiac disease, does not occur consistently in any one disease and in less than 50% of the time in any one case. It occurs irrespective of height of temperature, even during a crisis. The difference in rate between morning and evening, when present, is usually only three or four beats. Finally, the pulse in almost all cases is correlated and consistent with the temperature.

(To be continued.)

Reports of Societies.

BOSTON DISPENSARY.

THE 118th annual meeting of the Boston Dispensary was held on the evening of January 21, 1915, at the Hotel Tuileries; Mr. Edward R. Warren, president of the institution, presiding.

Dr. S. S. Goldwater, Commissioner of Health, of New York City, well known for many years as superintendent of Mt. Sinai Hospital, was the principal speaker. His address is printed in full in this issue of the JOURNAL.* Dr. Allen J. McLaughlin, Commissioner of Health of Massachusetts, and Dr. Edward H. Bradford, Dean of the Harvard Medical School, delivered brief addresses in discussion of the same subject.

Dr. McLaughlin referred to the necessity of bringing public health work to the mass of the people by continuous and persistent effort. "The important service which dispensaries can render in this regard needs to be made effective," said Dr. McLaughlin, "by ample provision of the service of visiting nurses and social workers. The development of this visiting and social service in the homes, as the advance guard of medical relief, is one of the most valuable contributions which any medical institution can make, and should be vigorously pushed in the interest of public health.

Dr. Bradford, in opening his remarks, referred to the fact that he had become connected with the medical staff of the Boston Dispensary forty years ago and that since then, though retired from service in the institution, he had followed its development with much interest. He spoke of the important function of dispensaries in educating medical students, pointing out that the type of medical teaching had greatly changed from the days when instruction was largely didactic to the present time, when dispensary clinics are utilized for giving medical students every opportunity for intimate observation of the sick and of the actual work of diagnosis and treatment. "One of the most valuable services to be rendered by dispensaries today," said Dr. Bradford, "is that of educating the community in the knowledge of hygiene. As many dispensaries reach thousands of patients annually, the power they may exert as educational agents may well be of great importance."

* See JOURNAL, page 613.

PROCEEDINGS OF THE BOSTON SURGICAL SOCIETY.

STATED MEETING HELD AT THE BOSTON MEDICAL LIBRARY, MARCH 1, 1915.

The President, DR. GEORGE H. MONKS, in the Chair.

PERFORATION OF THE STOMACH AND INTESTINE BY FOREIGN BODIES THAT HAVE BEEN SWALLOWED.

DR. FRANCIS S. WATSON read a paper with the above title. (See JOURNAL, page 622.)

DR. DANIEL F. JONES: That Dr. Watson has had a most unusual experience, is shown by the statistics of the Massachusetts General Hospital. The catalog shows that between 1896 and 1914, there were twenty-six cases admitted to the hospital because of foreign bodies in the stomach or intestines. All of these cases except three were discharged well, without operation, while three were operated upon. One because of a hatpin which had perforated the stomach and stuck into the liver; the second was a hair pin which had perforated the duodenum, and the third was an open safety pin which had lodged at the cardia. The first two cases were operated upon successfully; the third case, a child of eleven months, died before the operation was complete, probably of enlarged thymus.

It was in 1886 that Dr. Richardson reported his case of removal of false teeth from the esophagus through a gastrotomy. At the same time he collected thirty-two cases of gastrotomy for foreign bodies, which had perforated the stomach. In fourteen of these, the stomach was uninjured; three died. In eleven cases, the stomach was injured and adherent; one died. In eight cases, the condition was not indicated; one died.

Friedenwald and Rosenthal, *New York Medical Journal*, July 18, 1903, were able to collect but ninety cases (including the thirty-two collected by Dr. M. H. Richardson) of gastrotomy for foreign bodies, which had perforated the stomach. Of these cases, six had caused an abscess of the anterior abdominal wall, and three, perforation with death.

Of nineteen cases operated upon in pre-antiseptic days, 21% died. Of seventy-one cases operated upon since then, 8% died after operation. They conclude that: "Operation should be insisted upon immediately after the foreign body is swallowed," which seems hardly consistent with the facts.

In looking over the *Index Medicus*, for the year 1913, I was able to find reports of but three cases of perforation of the intestine, two of the duodenum, one of the ascending colon.

While Dr. Watson's paper does not go into the subject of foreign bodies in the appendix, I cannot refrain from referring to the fact that a number of years ago, when looking up the cases of abscess of the liver, in which the appendix was the primary focus, I found that of one hundred cases, a pin was found in the appendix, in fourteen.

To me the most interesting group of cases due to perforation of the intestine by a foreign body is the group of actinomycosis of the abdominal wall.

Among eight cases of actinomycosis of the abdominal wall, at the Massachusetts General Hospital between 1896 and 1914, a fish bone was found in the mass, in three. While this is not a large number of cases to base an opinion upon, I believe that if a sufficiently careful search were made, a

foreign body would be found in every case, to have caused the infection, rather than infection from a simple ulceration.

DR. C. L. SCUDDER: I should like to report briefly one case of

ACTINOMYCOSIS OF THE ABDOMINAL WALL.

In May, 1905, a Swedish woman, 49 years old, entered my service at the Massachusetts General Hospital. She complained of abdominal pain and cramps. An abdominal tumor was felt in the region of the umbilicus. It was thought to be a tumor of the abdominal wall. The skin over the tumor was red and presented a small sinus. The tumor was about the size of a small orange, non-fluctuant and projected posteriorly into the peritoneal cavity. Actinomycosis was considered as a possible diagnosis but no actinomyces were found in the discharging pus.

At operation the mass was removed including the whole thickness of the abdominal wall. The tumor was adherent to the transverse colon from which it was separated.

The tumor itself is of interest. It consisted of much fibrous tissue surrounding a fish bone two inches in length which lay at the bottom of the removed mass. The patient admitted that 12 years previously she had swallowed a good-sized fish bone. Evidently this fish bone which had been swallowed had perforated the transverse colon and the abdominal wall and was being extruded through the fistulous opening. Of very great interest is the fact that Dr. James H. Wright discovered in the pus in the bottom of this sinus actinomyces. In other words, the fish bone which had traveled through the transverse colon had made an atrium for the entrance of the actinomyces from the intestinal tract into the soft tissues of the abdominal wall.

In a study of actinomycosis Dr. Wright has called attention to the fact that probably actinomyces bovis is a normal inhabitant of the gastro-intestinal tract of both man and animals. He also called attention to the fact, which this case so beautifully illustrates, that the part played by the foreign body is not that of a carrier of actinomycosis, but that the foreign body (the fish bone in this case) by its irritative and traumatic effect furnishes a nidus in the tissues and enters with the secretions of the gastro-intestinal tract producing the lesion called actinomycosis.

This case then is of interest and importance in connection with the paper of Dr. Watson, for it is a case of a foreign body swallowed which subsequently perforated the intestinal tract.

This patient was seen by me in 1914, nine years following operation, and, so far as the abdominal wall is concerned, is well. There is no sign of actinomycosis either in the abdominal wall or elsewhere.

DR. C. A. PORTER: I have had three cases of foreign bodies in actinomycosis of the sub-maxillary region, one a beetle's wing, one a toothpick, and one a piece of bone. This fact shows that there were actinomyces in the mouth. Infection in all cases came from the buccal cavity. This is Dr. Wright's idea.

DR. DAVID CHEEVER: I have had two cases of perforation of the bowel of a type, which the reader has not mentioned, and very likely did not intend to include in his remarks. I refer to perforation occurring in a hernia,—not necessarily strangulated, but where the solid body finds it impossible to pass by the sharp angulation of the gut.

The first case was that of a Polish patient, admitted last summer to the Brigham Hospital, with the diagnosis of strangulated inguinal hernia. The history covered a period of five days. At operation, there was found an incarcerated, but not strangulated, inguinal hernia. The sac contained a large amount of pus, which communicated freely with the abdominal cavity, where there existed a general peritonitis. The source of the infection was due to the perforation of the bowel by a long slender bone,—probably the rib of a small mammal, which undoubtedly could have easily passed through the intestinal tract, had it not been for the sharp kink occurring in the hernial sac. Enterostomy and drainage of the peritoneum failed to save the patient, whose death two days after admission was due to the general peritonitis.

The second case was noted within the past week in the anatomical laboratory at the Harvard Medical School. Upon opening the abdomen, the clinical picture of intestinal obstruction was presented, almost the entire small intestine being markedly distended except for a small portion, which was totally collapsed. On further examination, a well-marked cavity in the wall of the pelvis was demonstrated, passing through the right obturator foramen into the adductor region of the thigh. The cavity was about 3 or 4 cm. in diameter and depth and a distended and collapsed coil of bowel was seen entering and emerging from it. Withdrawal of the gut was at first impossible until it was found that a small sharp bone, probably a splinter from a chicken bone, was impacted in the hernial cavity and had fixed a coil of bowel within it, at the same time perforating its wall and starting a local peritonitis. Here again, the bone would undoubtedly have easily passed through the intestine, had it not been for the sharp angulation at the above-mentioned point.

DR. MONKS: Dr. Watson has referred to his seeing professional glass-eaters in dime-museums while they were engaged in their business of eating glass. I remember that on one occasion a glass-eater in one of these museums gave me a special exhibition of his glass-eating abilities. Taking in his hand an ordinary claret glass he bit the edge off completely round the glass, and then chewed what he had bitten off. Finally, he pushed out his tongue, showing the broken glass fragments upon it. I noticed also, by the way, a drop of blood on the tongue close to these fragments. The man, after he had apparently swallowed the fragments, made no objection whatever to my making a digital examination of his mouth; but, although I inserted the tip of my forefinger into all the cavities of his mouth, one after the other, I could detect no glass whatever, and was forced to the conclusion that the fragments had actually been swallowed.

DR. WATSON: In reference to the cases spoken of by Dr. Cheever I would like to say that there have been reported about twenty such cases in incarcerated or strangulated hernia.

NEEDLE FRAGMENTS IN THE TISSUES LOCALIZED BY MEANS OF MAGNETISM.

DR. MONKS exhibited several fragments of needles which he had removed from patients, having previously localized these fragments by means of a magnetic indicator while they were still within the tissues. The fragments, which were mounted in a box under a glass cover, were passed about for examination, a little magnetic indicator being passed with

them. Each member was, therefore, able to test for himself the attractive force exercised by the fragments upon the indicator.

ANNOUNCEMENT.

DR. MONKS: I want to say a few words to the Society concerning a matter which I am sure will be of interest to them. One of the functions of the Philadelphia Academy of Surgery is to award every five years the Samuel D. Gross Prize, of $1000, "to the writer of the best original essay, not exceeding one hundred and fifty printed pages, octavo, in length, illustrative of some subject in Surgical Pathology or Surgical Practice, founded upon original investigations, the candidates for the prize to be American citizens." I think we must all agree that it is advantageous for any surgical society to have some such connection with the past, some worthy source from which it may gather inspiration for work in the future. This idea is, I think, beautifully expressed in a bas-relief in the reception room of President Lowell's house in Cambridge. This bas-relief represents a young man, who, about to spring forward, reaches to receive a lighted torch from the outstretched hand of an old man who has about run his course!

Although some of the members of the Boston Surgical Society are well along in years, yet the Society itself is of such recent formation, that, in a sense, it may perhaps be looked upon as youthful, and as therefore ready to receive from the past the responsibility of being one of the channels through which the high ideals and traditions of the past may be transmitted to the future.

As Boston has been a center of surgery ever since the days of ether, and even before, and as the surgery in those days was done by men whose character and achievements have reflected great credit and dignity upon Boston, it seems most desirable that some definite connection with this group of men should, if possible, be established. As no one could represent them better than Dr. Henry J. Bigelow, it gives me much pleasure to announce that Dr. Wm. Sturgis Bigelow has offered to establish a prize in the form of a gold medal, in memory of his father, Dr. Henry Jacob Bigelow, to be awarded from time to time by The Boston Surgical Society for valuable original work in surgery or connected with it.

What action will the Society take in this matter?

DR. SCUDDER: We have associated ourselves together as The Boston Surgical Society, an exclusive body, limited in membership, for the promotion of the art and of the science of surgery, and of professional good fellowship.

We are to be congratulated that our Society has been honored by being chosen custodian of the Henry Jacob Bigelow Medal—for the custodianship of this medal will contribute to the permanence of the Society, and the award of this medal will undoubtedly be a factor in furthering productive surgical investigation.

Therefore, Mr. President, I offer this motion:

That this trust be accepted;

That the Council of the Society be requested to forward an appropriate letter of acceptance to Dr. W. S. Bigelow, the donor, expressing the appreciation of the Society;

And, that the Council formulate the conditions concerning the award of the medal, which, after proper discussion by the Society, shall be submitted to Dr. Bigelow for his approval.

DR. PAUL THORNDIKE spoke of the gift as a fitting tribute from a generous son to a famous father, and stated that the Society should feel itself honored to be named the administrator of such a gift. He seconded Dr. Scudder's motion, and stated that he hoped that the Council would take every care to invest the gift with the dignity and the authority its importance deserves.

DR. WATSON: I am very glad, Mr. President, to have the opportunity to pay my tribute to the distinguished father of Dr. Wm. Sturgis Bigelow, who has made this generous offer to the Society.

If one recalls the pictures of certain international Medical Congresses, there stands out from their members one group of men. This group is composed of Pasteur, Lister, Virchow, Von Langenbeck, Sir William Macewen, Sir William McCormac, and Henry J. Bigelow. To my mind these were the most distinguished and notable figures in these gatherings; and, in certain respects, Dr. Bigelow was to be counted among the foremost of them.

Dr. Bigelow possessed certain attributes that gave him a distinction almost unique. Among them was an intellectual acumen such as one rarely meets with. The most striking characteristic of his mind was its remarkable and unerring manner of seizing upon the essential point of any problem, and of concentrating his attention upon that point until he had established it to his satisfaction in all its bearings. When a proposition interested him he spared no pains in perfecting the less essential details of the matter. Sometimes, however, he would rest content with having solved the vital part of the problem, and would turn over the detail of it to be worked out by some one else.

As a teacher, one of his most telling powers was that of graphic, often dramatic, expression, and of terse epigrammatic phrase. One of the evidences of the value of this way of bringing home to his students the truths he desired to impress upon them may be seen in the fact that of the words of all the teachers from whom I have received instruction, his are the only ones that I can today, after an interval of thirty odd years, repeat verbatim. Few of those who heard his terse summing up of the methods for treating the arm after reduction of a dislocated shoulder will ever forget the few words that he used to describe them at the end of one of his lectures: "Gentlemen," he said, "many pages have been written and many illustrations have been made to show how the arm is to be treated after reduction of a dislocated shoulder. The whole thing consists in this: Pad in the axilla, elbow to the side, arm in a sling. Good morning, gentlemen!"

As an operator his co-ordination of mind and hand was more perfect than that of any other surgeon it has been my fortune to see. He added grace and an unerring precision of movement to his other qualities, and thus made his operative work yet more impressive.

His sense of touch and the clearness of his mental vision gave him a power of making, almost instantly, diagnoses that others failed to make even after careful study.

Apart from these attributes he had a commanding personality, and always "looked the master."

It is a fortunate thing for this Society to have such a man commemorated, as he will be by this gift made by his son. This gift should serve as a stimulus to greater endeavor, on the one hand; and, as a link with the past and with the man who was

the foremost and most remarkable of American surgeons in his day. I hope that a fitting expression of our appreciation of this generous gift will be made to Dr. Wm. Sturgis Bigelow.

The motion was then put to vote, and was unanimously carried.

The meeting was then adjourned.

Book Reviews.

Diseases of the Bronchi, Lungs and Pleura. By Frederick T. Lord, M.D. Illustrated with 93 engravings and 3 colored plates. Philadelphia and New York: Lea and Febiger. 1915.

Dr. Lord has written an admirable book which fills a definite place in medical literature. There have appeared recently many works in English on the diseases of the heart, but there has been no satisfactory previous work in English on diseases of the bronchi, lungs anl pleura. Dr. Lord has been very wise in omitting discussion of pulmonary tuberculosis under a special heading but, of course, pulmonary tuberculosis is adequately discussed in its relation to other conditions. Tuberculosis of the lungs is of such importance that by common consent it forms a special field of its own. One of the most satisfactory features of the book is the excellent subdivision of the discussion; rare conditions are adequately and thoroughly discussed, but always with due regard to their frequency and importance. One cannot fail to be impressed with the thorough consideration of the literature, always checked up, however, by the writer's extensive clinical experience and his own researches. There is abundant use of pathological material. The form of presentation is clear and concise and the book can be heartily recommended as an authoritative exposition of the subject.

A Practical Text-Book of Infection, Immunity and Specific Therapy, with Special Reference to Immunologic Technic. By John A. Kolmer, M.D. With 143 original illustrations, 43 in colors. Philadelphia and London: W. B. Saunders Company. 1915.

Dr. Kolmer states in his preface that the purpose of the book is three-fold, namely: "(1) To give to practitioners and students of medicine a connected and concise account of our present knowledge regarding the manner in which the body may become infected, and the method in turn by which the organism serves to protect itself against infection or strives to overcome the infection if it should occur, and also to present a practical application of this knowledge to the diagnosis, prevention and treatment of disease. (2) To give to physicians engaged in laboratory work and special workers in this field a book to serve as guide to the various immunologic methods. (3) To outline a laboratory course in experimental infection and immunity for students of medicine and those especially interested in these branches." On the whole the writer has carried out his purpose well. While he has discussed the various theoretical considerations, yet the main emphasis is upon the established facts and the practical data of this complicated field. Dr. Kolmer has the very great advantage of having given a course covering this same field in the Medical School of the University of Pennsylvania. Consequently, he is perfectly aware of the confusing complexity of many aspects of the subject. His explanations are simple, direct and intelligible. It is a clear exposition of a difficult subject, which is even more complex because our knowledge of it is so recent and so little digested. The book will appeal especially to those who desire to know the general principles of immunity and to secure adequate information about the various reactions and to those who desire to have a standard reference book which will assist them in immunological research.

Text-Book of Surgical Operations. Illustrated by Clinical Observations, for Physicians and Students. By Prof. Fedor Krause, Privy Medical Councillor; Directing Physician Augusta Hospital, Berlin, in association with Emil Heymann, M.D., Chief Physician, Augusta Hospital. Translated into English and edited for American readers by Albert Ehrenfried, A.B., M.D., F.A.C.S.; Assistant Visiting Surgeon, Boston City Hospital; Junior Assistant Surgeon, Children's Hospital; Surgeon, Boston Consumptives' Hospital; Assistant in Surgery, Harvard Graduate School. In six volumes. Vol. I.

It will seem to many Americans a little strange to read that Fedor Krause, one of the best and boldest operators of the world, is known in Berlin as the "Directing *Physician*" of the Augusta Hospital, and that his associate in the publication of this most extensive of operative surgery text-books, is the "Chief Physician" of the same institution; it is a little like going back to the old days when the surgeon was almost unknown.

Krause is universally acknowledged both as a general surgeon, and as an authority upon surgery of the head; upon the latter subject he has published three volumes, the last of which was reviewed in the Boston Medical and Surgical Journal two years ago. Three volumes limited to the head, would seem to warrant at least six covering the surgery of the entire body. Unfortunately, the average man will be disinclined to buy for himself so large a work, and the six

volumes will be more limited in their circulation than their worth would justify.

Krause believes that specialism in surgery is not desirable; he makes this definite statement in his preface; he has written what he calls a text-book of operative surgery, illustrated by actual cases, with symptoms, operative detail, after-treatment, result, and notes of autopsy in fatal instances. This method necessarily adds interest and zest to what have often been in the past dry and detached descriptions. Gynecology, ear, nose and throat operations all become part of an enormous whole, and a painter (Max Landsberg) provides illustrations with reckless prodigality, from sketches made during the actual operations; these pictures are reproduced by a most finished lithographic (German) process, and necessarily add to the expense of the book; they stand to the text in the same relation as Broedels' pictures in America—as actual works of art.

The first four chapters consider the Preparation for Operation, Anesthesia, Asepsis, and devote a few pages to after-treatment; next appears a chapter upon Wounds and Fractures of the Face and Skull; Plastics of the Face, an exceedingly interesting chapter; Surgery of the Eye, Ear, Nose and Throat; Surgery of the Trifacial Nerve, and Extirpation of the Gasserian Ganglion. This completes the first volume of 250 pages.

Our grateful thanks go to the publishers for the flat soft paper and the large clear type, as well as for the excellent and practical binding of the book; and particularly to the translator, Ehrenfried of Boston,—a young man of ability and tireless activity, to whom we owe the English translation, which preserves so well the spirit of the original.

The book, of course, takes its pace immediately as one of the very best of the many good text-books of German Operative Surgery.

A Laboratory Manual and Text-Book of Embryology. By CHARLES W. PRENTISS, A.M., Ph.D. Octavo of 400 pages with 368 illustrations, many of them in colors. W. B. Saunders Company. 1915.

Since the appearance of Minot's work on embryology, this laboratory manual is the most important contribution which has been made to the text-book literature on this subject. It follows the general method of Minot's book and especially elaborates the study of pig embryos, with dissecting methods based on the work of Drs. Minot, Lewis and Thyng. The chapters on human organo-genesis are partly based on Keibel and Mall's "Human Embryology." The volume is beautifully illustrated with 368 figures, many of which are colored. It is a valuable addition to the literature of this fascinating subject whose development has been so notably the work of American medical science.

Papers on the Influence of Smoke on Health. Edited by OSCAR KLOTZ and WM. CHARLES WHITE, Mellon Institute of Industrial Research and School of Specific Industries, University of Pittsburgh. 1914.

This bulletin (No. 9) of the Mellon Institute of Industrial Research represents the smoke investigation conducted under its auspices at the University of Pittsburgh. The papers represent the work done by several physicians and laboratory investigators. Mr. Cohoe considers first the relation of atmospheric smoke and health. Mr. Oskar Klotz studies the subject of pulmonary anthracosis (misprinted arthracosis), which he regards as a community disease. Mr. W. L. Holman studies the bacteriology of soot, which he concludes to have a definite bactericidal action, due not only to the contained acids, but to some other agent, probably a phenol. Dr. Samuel R. Hathorne (whose name is also misprinted) presents some histological evidence of the disease importance of pulmonary anthracosis, which he regards as not in itself detrimental to health in an otherwise normal lung. In acute inflammatory conditions he believes it is seriously detrimental from its obliteration of lymphatics, but in tuberculous lesions it is either passive or actually assists healing by providing an additional stimulus to fibrosis and encapsulation, thus aiding the localization of the process. This article is illustrated by twenty photomicrographs. Dr. William C. White and Messrs. C. H. Marcy and Paul Shuey present brief statistical reports on the influence of varying densities of city smoke on the mortality from pneumonia and tuberculosis and on the influence of smoke on acute and chronic lung infections. The two latter papers are reprinted from previous publications. This research report as a whole is interesting, but unfortunately has the appearance of having been hastily printed without careful proof-reading.

Text-book of Massage. By A. MÜLLER, M.D., Munich. Bonn: Marcus and Webers. 1915.

This admirable German text-book of massage presents at length, for those who can avail themselves of it, a complete treatise of the latest theories and technic of this important subject. It is illustrated by 341 outline anatomic cuts after original drawings by the author. The text accompanying each of these full-page illustrations describes schematically the purpose of the manipulation, position of patient and physician, the tissues involved and the technic of the procedure. Such a work is, from its nature and method, more complete, though for the most part not so available to American practitioners, than many of the admirable English works, notably that of Dr. Douglas Graham, which have appeared in recent years.

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PUBLIC HEALTH ADMINISTRATION IN NEW YORK.

IN another column of this issue of the JOURNAL we are glad to publish the address on dispensaries as a growing factor in curative and preventive medicine, delivered at a conference held in this city in January under the auspices of the board of managers of the Boston Dispensary, by Dr. S. S. Goldwater, commissioner of health of New York City. The growth of dispensary work in recent years has been one of the notable facts in the development of medical institutions. In many of the larger cities from one-fifth to one-third of the population are annually patients at various such institutions. While the importance of dispensaries in the cure and prevention of disease is becoming more fully recognized, not only by patients but by physicians, their growth has been so rapid and so recent, that their standards are as yet less well defined than those in many similar fields of service. In recognition of this condition, this meeting was arranged for the consideration of dispensary work in its relations to medical science, social service, public health and education.

Dr. Goldwater, as superintendent of the Mt. Sinai Hospital of New York first gave his institution a place among the leading hospitals of the country and by promoting higher standards of dispensary service became a leader in the domain of public medicine. In his address Dr. Goldwater describes in detail the growth of the New York Dispensary system and discusses the subjects of administrative and clinical efficiency.

Later as health commissioner of New York City, Dr. Goldwater has earned distinction in constructive work for the the promotion of public health. Perhaps the four most notable aspects of his work in this capacity in New York City have been, first, the establishment of full-time service on the part of all bureau chiefs and department officials; second, public education in hygiene and methods of right living; third, the establishment of an advisory council to co-operate with the health commission and act as intermediates between the latter and various other agencies of public activity such as insurance companies and settlement and social workers; and fourth, the improvement of public transportation by the prevention of overcrowding and the requirement of ventilation and cleanliness in all public conveyances.

In this conjunction it is of interest to compare the public health administration of New York State with that of New York City. In 1913 a law was passed establishing a public health council, a sanitary code, and providing for the enforcement of the code by twenty sanitary supervisors having jurisdiction over as many districts.

"The Public Health Council consists of the Commissioner of Health and six members appointed by the Governor. The law provides that three of the appointive members shall be physicians experienced in sanitary science, and another of the appointive members a sanitary engineer. Dr. Simon Flexner, Director of the Rockefeller Institute; Dr. T. Mitchell Prudden, Vice-President of the Board of Scientific Directors of the Rockefeller Institute; Dr. Wilhelm Gaertner of Buffalo, and Dr. Hermann M. Biggs, Commissioner of Health, constitute the four physicians of the Council. Professor Henry N. Ogden of Cornell University is the Sanitary Engi-

neer appointed by the Governor. Mrs. Elmer Blair of Albany, President of the General Federation of Women's Club, and Homer L. Folks, Secretary of the State Charities Aid Association, complete the membership.

"The Public Health Council has no executive, administrative, or appointive duties. Its chief functions are 'to establish, and from time to time amend sanitary regulations,' to be called the Sanitary Code, and 'to prescribe by regulations the qualifications of Directors of Divisions, Sanitary Supervisors, local Health Officers hereafter appointed, and public health nurses.'"

The system of public health administration, thus designed, may fairly be regarded as ideal and has already been imitated in the state health commissions of Kansas, Maryland, Massachusetts, Michigan, New Jersey, and Texas. Unfortunately it has no sooner been hardly more than established in New York, than it is attacked by a series of five bills introduced into the General Assembly at Albany by Representative Hinman, radically amending the new law. These proposed amendments were described as follows in the New York *Times* of Sunday, April 11:

"The Hinman amendment of Assembly Print 1940 reduces the number of Sanitary Supervisors to ten, cuts the salary from $3000 to $2500, and makes the establishment of their districts discretionary instead of mandatory. Similarly, another Hinman bill, Assembly Print 1835, makes discretionary instead of mandatory the establishment of the divisions of the department, namely, those of child hygiene, public health nursing, tuberculosis, vital statistics, communicable diseases, administration, health education, sanitary engineering, and laboratories and research. The Commissioner is empowered by the amendment to eliminate or combine any of these divisions.

"The Hinman amendment, Assembly Print 1942, abolishes the duties of the Council in prescribing the qualifications of experts to be appointed to the more responsible positions requiring technical experience in sanitary science.

"Assembly Print 1943 amounts to the virtual abolition of the other important function of the Council relating to the sanitary regulation. Within the last year the Council has established seven chapters of the Sanitary Code, containing 119 regulations relating to the control of the spread of communicable diseases, maintenance of sanitary standards for milk and cream, the practice of midwifery, conduct of labor camps, prevention of nuisances, and miscellaneous practices.

"The Council now has power to amend these regulations if the necessity arises. The present health law provides that these regulations, as soon they are established by the Council, become operative without legislative action. Mr. Hinman's amendment takes away all the legal effect of these sanitary regulations. The amendment reads: 'All such regulations, including those heretofore embodied in the Sanitary Code, shall be reported by the Council to the Legislature for approval or rejection in whole or in part.'

"The Hinman amendment provides that in emergencies, such as epidemics, the sanitary regulations of the Council shall for a time have the force and effect of law, without the approval of the Legislature. The legal effect of such emergency regulations ceases ten days after the opening of the Legislature.

"Opponents of the amendment contend that the most important phase of modern sanitation is not so much the control of epidemics after they have started as the prevention of their occurrence. As contrasted with the present law, the Hinman amendment fails to provide for the development of this larger field of preventive medicine, for prevention requires action to forestall emergencies.

"The fifth Hinman bill requires the Commissioner and the directors of each of the different divisions 'to devote his entire time to the duties of his office.' It is contended that the enforcement of this would bring about the retirement of the present Commissioner, Dr. Hermann M. Biggs. For more than twenty-five years Dr. Biggs was identified with the New York City Health Department until he accepted the appointment as State Commissioner of Health. Under his technical leadership as Chief Medical Officer the death-rate of New York City was reduced below that of the State at large. Comparison of the vital statistics of the city and the rural communities show that in very recent years the progress of medical science has made it possible in enlightened communities, however crowded or populous, to secure by intelligent sanitary regulation and education, a reduction of the death-rate below that of rural communities."

In his recent thirty-fifth annual report, Dr.

Biggs commented particularly on these facts, and in continuation spoke as follows of the paramount importance of public health education in securing their benefits for the communities:

"Simple measures in the main—difficult in their application to large masses of the population only because they involve public health education—will assure these benefits. The education of the public to the risks of neglect, and to the advantages and ways of healthful living, is necessarily a slow process. For its successful accomplishment by the sanitary authorities, the requisites are adequate funds, broad powers, and an efficient organization carrying guidance and inspiration into every school, workshop, store, and factory, as well as into every home, whether in the city, town, or remotest countryside.

"Health and education should go hand in hand and on the same plane; but while millions are devoted to education, only thousands are spared for health. A hundred millions are spent by the State on a large canal; another hundred millions on good roads; tens of millions on institutions for the care of mental and physical derelects, while a few hundreds of thousands only are devoted to the promotion of health. This is not said in criticism of these larger and perhaps justifiable public expenditures, but to emphasize the newly recognized necessity which the welfare of every citizen involves."

The admirable public health which is being done under Dr. Goldwater in New York City, and under Dr. Biggs throughout the remainder of the State, should not be hampered at this juncture by meddlesome and mischievous legislation. It is earnestly to be hoped that the present political attempt to do so may meet with the decisive defeat which it deserves.

AN ANTITYPHUS VACCINE.

THE experimental work of Anderson and Goldberger and of others, more particularly Nicolle and Conseil, demonstrated a solid basis for the conclusion that the virus of typhus fever is present in the blood, at least throughout the febrile period. A number of months ago Dr. Henry Plotz, a young bacteriologist connected with the Mount Sinai Hospital, New York, reported the discovery of the specific micro-organism of typhus, and at a meeting of the New York Pathological Society held on April 15, 1915, not only was this discovery abundantly confirmed, but announcement was made by Plotz that he had succeeded in preparing an antityphus vaccine of similar character to the antityphoid vaccine, the prophylactic value of which is now so generally recognized. Its efficacy cannot as yet, of course, be regarded as established, since there has been no opportunity for testing it practically. It is a fact, however, that just previous to sailing, Dr. Hans Zinsser, professor of bacteriology in Columbia University and also president of the Pathological Society, together with other members of the Rockefeller Institute expedition to combat typhus in Servia, were inoculated with the vaccine. Plotz himself was the first person to be vaccinated.

After Anderson and Goldberger had announced their experimental researches showing that Brill's disease and typhus were identical, Plotz, while still a medical student at Columbia, became deeply interested in the subject, and after his graduation, in 1913, began a line of original investigations in the bacteriological department of Mount Sinai Hospital. He had the opportunity of examining the blood of a considerable number of patients suffering from Brill's disease, and it was not very long before he succeeded in isolating a bacillus which he demonstrated, by results noted from the inoculation of guinea-pigs and monkeys, to be the causative agent of the disease. As Dr. Libman, associate pathologist to Mount Sinai, expressed it at the meeting of the Pathological Society, "The discovery was no chance discovery. Dr. Plotz came to the hospital to discover the cause of Brill's disease, and he did it at the first try." Not long after this, through the courtesy of Dr. O'Connell, Health Officer of the Port, Plotz obtained in the Quarantine hospital specimens of the blood of several typhus patients, who had brought the disease from Europe, and from this blood isolated a bacillus which proved to be identical with that found in Brill's disease. Apparently, the two diseases, which differ so greatly in severity, are caused by two strains of the same microbe. The name, Brill's disease, will therefore be abandoned, and it is possible that the affection which has been so designated will now be known as endemic typhus, in contradistinction to epidemic typhus, the classic formidable

disease. At the meeting Dr. Brill himself expressed the opinion that this was the first work which had absolutely established the identity of the two types of typhus fever, stating that while he had long ago admitted that the two diseases were related, he had always contended that their identity had not been proved by the experiments of Anderson and Goldberger. Dr. William H. Welch of Johns Hopkins was asked to name the newly acknowledged micro-organism, and he gave it the designation, bacillus typhi exanthematosi.

That this bacillus is the causative agent of typhus, established by incontestable scientific proof, is accepted as final, as is shown by the fact that the discovery has received the endorsement of such men as Noguchi and Meltzer of the Rockefeller Institute, William H. Park, head of the research laboratories of the New York City Department of Health, and Mandelbaum and Libman, pathologists to Mount Sinai Hospital. All these were present at the meeting and warmly congratulated Dr. Plotz and the two other investigators associated with him in his work, Drs. P. K. Olitzky and George Baehr; and Noguchi was the first to express his gratification at what had been achieved. This was the first announcement of the discovery before a scientific body, and it cannot but be acknowledged that the achievement is one reflecting the highest honor on American medicine. Dr. Plotz is a native of Paterson, N. J., and it is certainly remarkable that so important a contribution to science should have been made by one only now in his twenty-fifth year. Should the typhus protective vaccine prove to afford the same immunity as is observed in the case of that against typhoid, the good it may accomplish is almost incalculable.

THE MEDICAL PROFESSION AN AGENT FOR PEACE.

INTERNATIONALIZING of the medical profession, already favored by medical congresses and the modern facility of travel, has been well advanced by the present war in Europe. Physicians now serving in the armies on the continent treat friend and foe alike. Are they not the only real neutrals who are engaged in the struggle? Men skilled in mathematics, physics, chemistry and other practical sciences are vying with each other to perfect methods of destroying life and property on a scale never before seen in the history of the world. Lawyers are engaged in setting forth the justice of the cause of one or the other nation and in furnishing arguments for their moral or commercial advantage. The clergy is divided in its sympathies, and its ability to minister to the religious needs of all is impaired because of the many sects into which the Christian church is split and the diverse partisan considerations arising out of such an ununited state. The peace societies and the propaganda of Mr. Carnegie and others have been unsuccessful in averting war or in mitigating its severity. Even the men of letters are ranged on one side or the other and are striving in their worship of a national ideal to forget their belief in a universal God.

There are highly cultured and civilized men and women among the people of all nations, and individual morality and right living have progressed to a higher plane in recent times. The morality of nations, however, is about where it was in the days of Caesar when physical might meant right.

Surgery, medicine, bacteriology, hygiene, have never been employed for other purpose than the saving of life. They have no national ambitions, no national ideals; they belong to all. May this not be the time for them to march to the battle against self interest and militarism with the vision of a modern Emperor Constantine, "*In hoc signo vinces*" and a red cross.

Groups of eminent American medical men are now giving their services in England, in Paris, in Berlin, in Vienna, in Petrograd and in Servia, caring for the wounded, assisting in the problem of sanitation and in stamping out epidemics of infectious disease. The profession of medicine represents humanity as a whole; its aim is solely the alleviation of suffering and the preservation of life. It is opposed to war and to killing and maiming.

In a recent issue of *Science* Dr. S. J. Meltzer, of the Rockefeller Institute, suggests that the medical profession of the United States, a neutral nation, take the initiative in forming a medical brotherhood devoted to international morality, appealing to the physicians of the belligerent nations to join after the war is over. Perhaps such an organization might be able to teach that although life is a perpetual strife, the fittest may achieve survival by other means than by bloodshed.

ORGANIZED OBSTETRIC AND PREGNANCY CARE IN MASSACHUSETTS.

The experience of those who have studied conditions of the law in Massachusetts shows that approximately five hundred midwives are practicing in Massachusetts today, and that a large proportion of these are unclean and inefficient. The fact that this is the case reflects distinctly on the medical profession and brings up the question whether practicing physicians properly appreciate the needs of the community and are endeavoring to meet them. If this is the case, why are these midwives allowed to exist?

It is recognized, however, that they cannot be eliminated until a better service is provided by the medical profession. The people in their ignorance of medical affairs feel that they need just such a service as the midwife provides. Is the medical profession endeavoring to show that the people really need a better service?

The article on the Care of Prospective Mothers in this issue of the Journal is put forward by the medical profession, and others in the state, as one method to meet this situation. The only objection, so far as we know, which is raised against the development of such work in the interests of the public, is that it makes an organized effort to meet this condition, and some doctors feel opposed to this organization because it may take away from them a certain amount of their practice. Even if appeal is made to the selfish motives, there is another way of looking at this scheme.

It ought to be clearly recognized that any scheme which leads people to appreciate better service offered by doctors would lead to the more general use of the doctors for obstetric cases. The profession will have to give at first a certain amount of service in developing these clinics, but this will be returned to the medical profession many fold.

Still another result of such organization of obstetric work would be abundant material for teaching obstetrics to the young practitioners of any locality through a properly organized and supervised service, which is the only way obstetrics can be thoroughly taught. The men allied with these clinics might become recognized in each community as being competent in obstetrics. The incompetent would naturally work in other lines. Thus a better class of obstetric practitioners would develop in each community, and the medical profession gain prestige.

THE BOSTON SURGICAL SOCIETY AND THE HENRY JACOB BIGELOW MEDAL.

The Boston Surgical Society, an organized and incorporated body whose membership represents the hospitals of Boston, is to be congratulated; for to it has been offered by Dr. Wm. Sturgis Bigelow, of Boston, the privilege of awarding from time to time a medal to that individual, who, in the opinion of the Society, makes such notable contribution to the science or the art of surgery as to be entitled to receive it. Dr. Bigelow intends to deposit an adequate fund for this purpose. The medal is to be known as The Henry Jacob Bigelow Medal, in memory of the donor's father.

It is hardly necessary to add that the stewardship of the Bigelow medal has been accepted by the Society with enthusiasm. In the report of the transactions of the Society, which appears in another column of this issue of the Journal, is published a statement about the medal made to the Society at the time of the presentation of Dr. Bigelow's offer. Certain conditions concerning the award of the medal are as yet undecided, but it is expected that they will be announced shortly, and further information about them will be duly presented in the columns of the Journal.

MEDICAL NOTES.

New York Death-Rate.—Among those causes of death that swell in great measure the mortality returns, there was not a single one during the past week that did not show an increase in the number of reported deaths as compared with the returns for the corresponding week of the year 1914.

The most notable increases were among the following causes: lobar pneumonia, in which the increase was practically double, as was also that from acute bronchitis. The number of deaths from broncho-pneumonia increased about 30%, from pulmonary tuberculosis 35%, from organic heart disease about 17%, from chronic Bright's disease about 12%.

The number of deaths reported during the week was 1778, as against 1566 during the corresponding week of 1914, the death-rate increasing from 14.63 to 15.98 per one thousand of the population.

The death-rate for the first sixteen weeks of 1915 was 14.66 per one thousand of the population, as against a rate of 15.47 during the corresponding period of 1914, a decrease of .81 of a

point; the decrease in the death-rate for this year up to the last week of March was 1.5 of a point, so that the effect of the increased virulence of influenza during the past three weeks has been to change this decrease in the death-rate by almost 50%, from Jan. 1 to date.

RADIUM INSTITUTION IN MANCHESTER (ENG.).—It is reported in *Nature* that the movement for the establishment of a radium institution in Manchester has received hearty support from the public and the press. The committee appointed to carry out the scheme collected about £30,000. One thousand pounds was spent in equipping several rooms for the use of the department in the Royal Infirmary and 800 milligrams of radium metal, costing about £21,000, were purchased from an American firm. The standardization of the radium was done in the laboratories of the University of Manchester. The committee is now arranging to distribute the radium, either in solid form as applicators, or as emanation tubes from the liquid form, to the other hospitals in Manchester and the district.

LONDON DEATH RATES IN FEBRUARY.—Statistics recently published show that the total death rate of London in February, 1915, was 20.7 per thousand inhabitants living. Among the several districts and boroughs the highest rate was 24.8 in Bermondsey, a populous southern slum, and the lowest was 15.8 in Hampstead, an open residential district on the north.

FRENCH VITAL STATISTICS.—Report from Paris states that on April 16, the vital statistics of France for the first half of 1914 were published. During that period there were 2000 fewer marriages, 4000 more births and 20,000 more deaths than during the corresponding period of 1913. The net diminution in the population of France during this time was about 17,000, while the population of Germany increased nearly 500,000 during the same period. This six months' period is the last in which what may be considered as normal peace conditions prevailed in France. Subsequent statistics will show not only the preëxisting trend of the population, but the effect of the European War upon all forms of vital statistics.

BUBONIC PLAGUE IN HAVANA.—Report from Havana states that on April 19 three cases of bubonic plague were discovered in Vedado, a fashionable suburb of the city. This focus of infection, which appears confined to a small group of houses has already been isolated.

SMALLPOX AT SAN FRANCISCO.—Report from San Francisco states than on Apr. 19 a case of smallpox was discovered aboard the steamship *Chiwo Maru*, which arrived at port on that day. The patient was isolated and 336 passengers on the steamer were vaccinated.

NEW YORK DRUG LAW.—Report from Albany, N. Y., states that on April 17 Governor Whitman signed a bill so amending the present state drug law as to make it a felony instead of a misdemeanor to sell habit-forming drugs to persons under sixteen years of age.

MEDICAL SOCIETY OF THE MISSOURI VALLEY.—The spring meeting of the Medical Society of the Missouri Valley was held at Omaha, Neb., on March 25 and 26, under the presidency of Dr. Granville Ryan of Des Moines, Iowa, with an attendance of over three hundred members and guests. Addresses were presented by Dr. F. H. Albee of New York on bone grafting; by Dr. C. S. Williamson of Chicago on cardiac overstrain; by Dr. Paul Paquin of Kansas City on early symptoms of tuberculosis; by Dr. Reuben Peterson of Ann Arbor on craniotomy; by Dr. A. A. Law of Minneapolis on the status of the autograft, and by Dr. E. G. Blair of Kansas City on goitre. It was voted to hold the fall meeting of the society in Des Moines.

PYGOPAGUS AND XIPHOPAGUS.—The local interest recently excited by a case of pygopagous twins at the Children's Hospital is paralleled by that in a case of xiphopagi reported on April 19 from Houston, Texas. The Texan twins, like those in Boston, are three years old and are reported to be equally well developed. They were born in Havana of Spanish parentage. It is stated that the operation of xiphopagotomy is soon to be performed upon them.

LEGACY TO BUREAU OF SOCIAL HYGIENE.—The will of the late Mrs. John D. Rockefeller, which was filed in New York City on April 17, contains a residuary bequest to numerous charitable and educational institutions, including the American Bureau of Social Hygiene.

YELLOW FEVER IN LOUISIANA.—Report from Morgan City, La., states that on April 15 two cases of yellow fever were discovered in that port aboard the schooner *Colwell*, recently arrived from Demerara, British Guiana. One member of the crew had died on March 25 and was buried at sea. The two remaining cases have been isolated.

NATIONAL ADMINISTRATION OF NEW YORK QUARANTINE.—On Tuesday evening of last week, April 20, a meeting was held at the New York Academy of Medicine for the purpose of urging that the quarantine station of the Port of New York, now in the hands of the New York State Government, be transferred to the United States Public Health Service, a step which the present conditions in Europe make especially important at this time. At this meeting Mr. Henry James, Jr., who has recently returned from an official tour of inspection through the belligerent countries of Europe, made the opening address on "Present health conditions in Europe, and their

relation to this country." Dr. William C. Woodward, health officer of the District of Columbia and former president of the American Public Health Association, spoke on "The menace of inadequate quarantine and the meaning of an efficient quarantine to the entire country"; and the Hon. William H. Taft on "The relation of the national government to quarantine and other public health agencies."

European War Notes.—On April 17 the war relief commission of the Rockefeller Foundation published a report of its investigation of present conditions in Serbia, where typhus, typhoid, recurrent fever, smallpox, scarlet fever and Asiatic cholera are present. It is estimated that there are in Serbia at present from 25,000 to 30,000 cases of typhus fever, from which there are 100 deaths daily in Nish alone.

"One day during the visit of the commission it was reported that the cemetery at Nish contained 250 unburied bodies of typhus victims, the force of grave diggers being entirely unable to keep up with the work.

"In Belgrade, in one hospital were 165 cases of typhus, with a larger aggregate number in several other hospitals.

"In Skopje, Dr. Barrie, an English physician who has been in Skopje several months at the head of a medical mission of the British Red Cross, estimated the number of typhus cases on Feb. 24 at 2000.

"Valjevo, a town in that part of Serbia which was for a time held by the Austrian army, is reported to be the most serious centre of the epidemic of typhus. Substantially the entire civilian population there are involved in the disease. Without medical care, with no direction or resources for setting on foot sanitary measures, remote and helpless, the population is being decimated, while the epidemic spreads in rapidly widening circles. Every community on the main lines of travel is in the clutches of typhus. Into the mountain places and the villages distant from the railroads the disease is being carried by the moving troops and bullock drivers and by the straw-lined carts in which the sick and the well are transported, and it is said to be prevalent in most of them already."

On April 27, two additional Red Cross hospital units, consisting of six surgeons and twenty-four trained nurses, sailed from New York for Liverpool aboard the American line steamship *St. Louis*. These units will be attached to the Belgian Army and will be stationed for six months' duty at the Ocean Hospital at LaPanne. The surgeons are Drs. Albert R. Goodman of New York, Robert W. Hinds of Buffalo, William H. Morriss of Baltimore, John D. Spellman of Cincinnati, William T. Fitzsimmons of Kansas City and Earl V. Morrow of Portland, Oregon. Dr. James E. Daniel of Greenville, S. C., also sailed on April 17 for duty at the American Women's Hospital, Paignton, Devonshire, England.

At the meeting held in the Boston Medical Library on April 14 the sum of $7,200 was raised for the Belgian Red Cross.

European War Relief Funds.—On April 24 the totals of the principal American relief funds for the European War reached the following amounts:

	N. Y.	N. E.
Belgian Fund	$1,023,174.92	$252,855.25
Jewish Fund	617,747.53	58,834.23
Red Cross Fund	484,402.23	131,097.09
American Ambulance	386,127.89	
Committee of Mercy	146,502.48	
Polish Fund	45,627.28	42,904.66
Serbian Fund	39,452.11	11,756.25
Persian Fund	25,694.71	

BOSTON AND NEW ENGLAND.

Smallpox in Providence.—Report from Providence states that on April 18 two cases of smallpox were discovered aboard the Fabre steamship *Roma*, which arrived in port on that day from the Mediterranean. The first case had developed when the ship was nine days out from Marseilles. All the passengers were vaccinated and the patients were detained in quarantine.

Meeting of Charitable Irish Society.—At a regular monthly meeting of the Charitable Irish Society on April 20, addresses were made by Dr. Allan J. McLaughlin, health commissioner of Massachusetts; by Dr. Timothy F. Murphy, who spoke particularly of tuberculosis; and by Dr. Thomas F. Harrington, director of hygiene in the Boston public schools, on preventive medicine in education.

Hospital Bequest.—The will of the late James J. Myers of Cambridge, Mass., who died on April 13, was recently filed at the East Cambridge Probate Court. It contains a bequest of $3000 to the Cambridge Hospital.

New Health Officer.—Dr. Frank L. Morse, of Somerville, appointed to the position of district health officer, as noted in a recent issue of the Journal, has resigned from that office because of other duties. Dr. McLaughlin has appointed Dr. Lewis Fish of Fitchburg to fill this position.

Massachusetts Homeopathic Medical Society.—The annual meeting of the Massachusetts Homeopathic Medical Society was held in Boston on April 12, 13 and 14, in observance of the 75th anniversary of the foundation of the society. At the closing session Dr. G. Forrest Martin of Lowell, Mass., was elected president for the ensuing year. It was voted by the Society to send a contribution of $500 to a medical field hospital which has been established by homeopathic physicians at Neuilly, France.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending April 20, 1915: Diphtheria, 34, of which 3 were non-resident; scarlatina, 84, of which 13 were non-resident; typhoid fever, 2; measles, 222, of which 3 were non-resident; tuberculosis, 44. The death-rate of the reported deaths for the week was 18.72.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—A monthly meeting of the Boston Instructive District Nursing Association was held in this city on April 15. During the month of March 200 more new patients were treated than in February and 2000 more visits were made to patients in their homes. Four extra nurses have been needed to administer this increased amount of service. The twenty-ninth annual report of the Association, recently published, describes the work of the year and presents a study of 13,112 patients, showing the distribution of the fees, the details of the work, and the particular problems of different locality as regards tuberculosis, baby hygiene and unemployment.

MASSACHUSETTS HEALTH CONFERENCE.—Under the joint auspices of the Massachusetts Association of Boards of Health and the Massachusetts Health Commission there is to be held in Boston today an important public health conference under the chairmanship of Dr. Milton J. Rosenau, president of the Association. Invitations have been extended to health officials, publicists and charitable workers throughout the state, and there are to be addresses by President Eliot, Dr. W. T. Sedgwick, president of the American Public Health Association, Dr. Allan J. McLaughlin, Massachusetts Health Commissioner, and Professor Irving Fisher of Yale.

"The Massachusetts Association of Boards of Health is composed of health officials and persons interested in preventive medicine. It was organized in 1890 and meets four times a year. It was the regular meeting of this Association that was selected for the health conference. The objects of the Association meetings are the advancement of sanitary science in the Commonwealth of Massachusetts, the promotion of better organization of local boards of health, and the uniform enforcement of laws and regulations relating to the preservation and promotion of health. The meetings give an opportunity, also, for local health officials to explain to the state department of health problems and the solution of problems before the department, thus promoting a better coöperation not only between neighboring communities but between the state's department of health and the local boards of health."

MASSACHUSETTS CLEAN MILK BILL.—On April 22 the Massachusetts Senate passed to be engrossed the clean milk bill, whose passage has been editorially advocated by the JOURNAL and by various public health, charitable, and educational organizations in Boston. Mr. George R. Bedinger, director of the Boston Milk and Baby Hygiene Association, has recently sent to every senator a circular letter in behalf of this bill, reading in part as follows:—

"It needs no investigation to bring us to the conclusion that our State Department of Health ought to have the legal authority on its own initiative to stop the sale of milk from filthy places by means of such a law as Senate bill No. 482, making it illegal to sell milk handled under unsanitary conditions and providing that no person shall be prosecuted until after he has had a warning notice.

"Legislation has been postponed from year to year on every conceivable pretext and we think it is high time something was actually accomplished.

"It should be remembered that this campaign has been carried on during the last five years as a result of two official investigations made in 1910 and 1911. That the amendment to investigate the subject for still another year is made for the purpose of killing the bill, is shown conclusively by the fact that the men who are advocating it have already during this session voted twice against a similiar investigation."

On April 26 an open meeting for milk consumers was held in the evening at Huntington Hall, Boston, under the auspices of the committee on agriculture of the Chamber of Commerce.

"For over a year the Committee on Agriculture of the Boston Chamber of Commerce, in cooperation with the federal and state agencies, has been making a very thorough investigation of the production, transportation, inspection, grading and distributing of milk and cream in New England. It has held meetings and conferences with the farmers, dealers, railroad representatives, milk inspectors and health officials. The conditions pertaining to each phase of the industry have greatly changed in the last ten years. The committee has endeavored to ascertain just what the present conditions are in each phase, *i.e.* how, and where, milk and cream are produced, transported, inspected, graded and distributed; what they cost and what becomes of the difference in price paid by the consumer and the price paid to the producer. The committee expects to issue a report about June 1, which will enable the public to have correct information as to the present conditions, with certain practical recommendations that can be carried out for the benefit of all. The committee has interviewed many large buyers of milk and cream but, before it makes up its final report and recommendations, it wishes to hear from the general consuming public."

EPIZOÖTIC OF FOOT AND MOUTH DISEASE.—It is stated on apparently good authority that since March 18, no new cases of foot and mouth disease have occurred in Massachusetts and none is known to exist in the state. Dr. Lester H. Howard, commissioner of the Massachusetts Bureau of

Animal Industry, is reported to have said that the movement of cattle within quarantine towns is now allowed by special permit.

"Such permits will be issued in the future where the circumstances are favorable. In the western and northwestern parts of the State, where the foot-and-mouth disease never appeared, the cattle movements are unrestricted, but in the infected area of the State the quarantine may have to remain for ninety days after the last place in the country to report any infection has been fumigated. Under Dr. Howard's policy of issuing permits this does not mean the enforcement of the strict quarantine regulations that have tied the hands of Massachusetts farmers for the last six months, as the farmers will be allowed to move their cattle in vehicles if they apply to the Cattle Commissioner for permits, subjecting their activity to the State regulations; but it is the Government's intention to keep its reins on all cattle movements for the present in order that the check can be applied instantly if there is an outbreak anywhere. While Dr. Howard concedes that it may be perfectly safe to throw everything open now, he says it is better to be cautious a little longer, lest there be an animal somewhere carrying the disease on the skin, ready to yield to it if the skin is bruised or the general health is broken down. With such possibilities Dr. Howard wishes to take no chances, and the Federal Government will take no chances, if it can be avoided within reason. Cattle will not be allowed to walk or run in the public streets within the quarantined zones, but may be transported under proper conditions. Nor will the Department of Animal Industry in Massachusetts allow the full repopulation of disinfected barns at once. Despite the disinfection some germs may have escaped and may become active when cows are put back into the stables. Therefore the number to be put in at first will be regulated."

From the date of the first outbreak, last November, up to the present time, the foot-and-mouth disease has resulted in the slaughter in Massachusetts of 2104 head of cattle, 5703 swine, 77 sheep and 11 goats. These 7895 animals had an appraised value of $230,000, of which the United States Government will pay $115,000 and the State of Massachusetts $115,000. To meet this charge the Massachusetts Legislature has appropriated $150,000. There are heavy losses to the farmers, however, that are not covered by that appropriation, and never will be paid.

Obituary.

SIR THOMAS SMITH CLOUSTON, M.D.

Dr. Sir Thomas Smith Clouston, who died on April 19, at Edinburgh, Scotland, was born in Orkney in 1840. He received his education at Aberdeen and Edinburgh Universities, and subsequently settled in Edinburgh as a practitioner in psychiatry. He had served as president of the Medico-Psychological Association, the Medico-Chirurgical Society and the Royal College of Physicians of Scotland. He had also been superintendent of the Royal Cumberland and Westmoreland Asylums and was for many years editor of the *Journal of Medical Sciences*. He was the author of several books, among them "Clinical Lectures on Mental Diseases," "The Neuroses of Development," "An Asylum or Hospital House," "The Hygiene of Mind," and "Unsoundness of Mind." He was distinguished throughout Great Britain as an authority on mental diseases and had received the honor of knighthood in 1895. He is survived by one daughter and one son.

JAMES BRAINERD FIELD, M.D.

Dr. James Brainerd Field died at his home in Lowell, April 15, of pneumonia, after an illness of six days. He was born in Athol, Mass., Feb. 16, 1859, and was educated at the Boston Latin School and at Harvard College, from which he was graduated in 1880. After graduating from the Harvard Medical School in 1884 he began practice in Lowell. He was a member of the staffs of the Lowell General and Lowell Corporation Hospitals and had for twenty years been treasurer of the Association of the Massachusetts Boards of Health, and for nine years chairman of the Lowell Board of Health.

He was a councilor of the Massachusetts Medical Society from 1907 to 1908, and president of the Middlesex North District Medical Society in 1912-13.

He is survived by his widow, one daughter, and a son, who is a student at the Harvard Medical School.

Miscellany.

DEFENCE OF ANIMAL EXPERIMENTATION IN BOSTON

In the issue of the Journal for April 15, we noted the recommendation initiated by Mayor Curley for the establishment of a fund of $20,000 in the pathological department of the Boston City Hospital for the experimental study of scarlet fever, measles and other infections. This proposition has been opposed by anti-vivisectionists who have protested to the mayor against the project. In his reply to one of these protestants

Mr. Curley wrote as follows in defence of animal experimentation.

"Unfortunately, perhaps, for myself, I have adopted the policy through life of speaking plainly my mind with reference to any question submitted, and like all humans, it is only natural that from time to time I err and not infrequently make mistakes. In this case however, I believe that I am not committing an error, neither am I making a mistake, despite the fact that the action taken by me will result in the estrangement of those whom I have regarded as friends.

"The same condition that obtains at Boston is found throughout the entire United States and the world generally. The financial loss to the city during the past six years resulting from epidemics of scarlet fever and measles is not less than $600,000. There is no method of logic by which it is possible to determine the injury or the suffering caused to parents through illness and death of their children. It is perfectly proper for the individual to have a high regard for pet animals, and while the chimpanzee is not attractive as a pet, I find it has numerous admirers.

"I firmly believe that the life of one child is of more value to its parents than all the chimpanzees in existence, and if, through vivisection of chimpanzees, a serum can be produced that will result in the saving of the lives of children, I am prepared to attempt the experiment regardless of whose sensibilities may be offended."

In approbation of this attitude on the subject of animal experimentation the following letter was sent to the mayor by Dr. Withington as president of the Massachusetts Medical Society.

"Dear Mr. Mayor—I beg leave to express to you in behalf of some three thousand physicians of this State, our profound appreciation of the strong letter which has appeared in the public press from your honor to an objector against animal experimentation as an aid to the saving of human life.

"In the midst of ignorant statements regarding the status of epidemic disease, which might be easily corrected by a reference to health statistics, and of assertions of the infliction of torture upon animals, which have been mercifully made oblivious by anæsthesia, it is refreshing to have a sane statement from a man and an official interested in the saving of human life and the stopping of economic waste. The vivisection (for every prick with a hypodermic needle is technically that) practised for years in our municipal laboratory in the testing of the virulence of diphtheria and other organisms, has already borne abundant fruit in the saving of many children's lives.

"Chimpanzee or child? Which is the better worth saving? You have answered the question courageously and it is to be hoped, definitely, and in so doing you deserve the thanks not only of scientific workers, but of the fathers and mothers in the city.

"Yours respectfully,

"CHARLES F. WITHINGTON, M.D.

"President of The Mass. Medical Society."

The attitude of the mayor and its prompt recognition by the representative of the Massachusetts medical profession is a matter of encouragement and congratulation for the cause of animal experimentation.

TUBERCULOSIS "REMEDIES" THAT ARE WORTHLESS.

THE United States Department of Agriculture has recently issued the following statement about so-called tuberculosis cures:—

"After investigating under the Food and Drugs Act, a large number of preparations advertised as consumption cures, the Department of Agriculture has not been able to discover any that can in any sense be regarded as 'cures' for tuberculosis. Some contain drugs that may at times afford some temporary relief from the distressing symptoms of the disease, but this is all. Since the passage of federal legislation prohibiting the shipment in interstate commerce of medicinal preparations for which false and fraudulent claims are made, there has been a marked tendency to label these preparations 'remedies' instead of 'cures' or 'infallible cures,' as they used to be called. In many cases, however, they cannot even be regarded as remedies.

"A 'cherry balsam,' for example, for the 'cure' of 'consumption' and 'hemorrhage of the lungs,' which it was represented would 'strike at the very root of the disease,' was found on analysis to be nothing but a solution in water and alcohol of opium, sugar, benzaldehyde, inorganic salts and coloring matter. It contained no cherry bark extract or balsam.

"A more elaborate 'cure' consisted of five different preparations which the credulous patient was to take separately. These were: first, the medicine proper, the essential ingredients of which were found to be morphine, cinnamic acid and arsenic—not a very safe mixture to take habitually; second, a tonic which was supposed to contain iron but did not; third, a 'cough mixture,' made up of alcohol, chloroform, and codeine; fourth, a mixture which contained some quinine, and a solution of water and alcohol; and fifth, codeine tablets. Even the strongest constitution could hardly stand a prolonged course of such a treatment.

"In the marketing of such preparations considerable ingenuity is frequently shown. One of the main objects is to persuade the patient that he is receiving, at a comparatively low price,

the individual attention of a trained specialist. For this purpose, symptom blanks are employed. These contain a number of questions about the patient's symptoms, the number varying from a dozen or so to as many as seventy or eighty. The patient is led to believe that the information which he furnishes in reply to these questions, will be carefully considered before any medicine is prescribed for him, though every physician knows that an accurate diagnosis cannot possibly be made in this way. As a matter of fact, none is attempted, and the degree of attention which these individual reports receive can be measured by the fact that cases have come under the observation of the department in which mail order concerns doing a business of this kind have received as many as 4000 letters a day.

"After the patient has submitted his 'diagnosis report,' he is urged to purchase a supply of the medicine. If he does so, he is then urged to purchase more. If he states that he has experienced no beneficial effects he is told that he has not taken enough, and this process is likely to continue until the limits of his credulity have been reached. If, on the other hand, he decides at the beginning not to purchase the medicine, it is likely to be offered to him at successively lower prices until he is at last induced to believe that he cannot afford to ignore such a bargain. This is carried to such an extent that a 'treatment,' the original price of which is $25, may be offered at the end of six months for $2.50.

"As a matter of fact, the successful treatment of tuberculosis requires much more than the mere giving of medicine and, moreover, what will help one case will not necessarily help another. Claims that are absolutely unwarranted are no longer permitted on the labels of medicines shipped in interstate commerce, but the wording may be such as to convey a misleading impression without the use of absolute statements. Thus these preparations continue to find a sale, despite the fact that a little trouble on the part of the prospective purchaser will reveal their worthlessness."

AMERICAN SOCIAL HYGIENE ASSOCIATION.

The American Social Hygiene Association has recently announced the offer by one of the large insurance companies of a prize of $1000, to be awarded to the author for the best original pamphlet on social hygiene for adolescents between the ages of twelve and sixteen. The competition for this prize is open to all, and typewritten manuscripts, not exceeding 3500 words in length and signed by a fictitious name, must be submitted, with the author's true name in a sealed envelope, to the American Social Hygiene Association, 105 West Fortieth Street, New York City, not later than July 31, 1915. The following statement with reference to the competition was published in the bulletin of the Association for March, 1915:—

"In offering a prize of one thousand dollars for a social hygiene pamphlet for adolescents, suggested and generously provided by the Metropolitan Life Insurance Company, the American Social Hygiene Association is presenting a problem for solution by writers in the social hygiene field. The conditions under which this offer is made are printed elsewhere in this number of the Bulletin. No suggestions or restrictions as to methods of presentation or treatment of the subject-matter are made. It is, perhaps, unnecessary to say that accuracy of statement, such use of statistics and quotations as is warranted by the context from which they are taken, broad and practical grasp of the subject as presented, soundness of pedagogical method, and attractive and convincing form are among the important points to be considered in judging the merits of manuscripts submitted.

"The questions most frequently asked by those interested in the competition are: 'What kind of pamphlet is wanted? Is it to be written for boys, or for girls, or for both—or for parents? Must it cover the entire period of the four years specified? Must it take up the physiological changes of adolescence? What sort of instruction may the author assume that the child has had before reading the pamphlet?' To such inquiries the reply is that the prize has been offered for the best solution of the problem of approaching through the printed word the youth of America from twelve to sixteen years of age. If the author is convinced that the indirect approach through the parent is the proper method, he may prepare his manuscript for use by the parent. If he thinks that the most pressing need is for a pamphlet to be placed in the hands of boys, he may prepare his manuscript for that purpose. Similarly, he may prepare it for the use of girls, or, if he thinks it more desirable, he may combine his information into a single pamphlet for the use of both boys and girls. If he believes that adolescents from twelve to sixteen years of age do not form a practical group, he may direct his effort toward any portion of this age group (for example, those from twelve to fourteen years, or those from fourteen to sixteen years), and may so indicate. He may submit his manuscript as one of a series designed for special groups, but should present also the other numbers of the series, to show its character as a whole. Notes explaining the points of view from which it has been prepared may be submitted with the manuscript, bearing the same identifying mark or pen-name, but not the name of the author.

"It is generally recognized that the early adolescent period in the life of both boys and girls presents one of the most difficult problems in educational work. In the special fields of instruction or education with which the social

hygiene movement deals, this period is probably the most difficult. There is substantial agreement as to what information ought to be given the young child and as to the desirability of thorough, scientific instruction touching on the problems of sex and reproduction for persons of mature years. But the problem of the early adolescent period still awaits a satisfactory solution."

GERMAN MEDICAL EFFICIENCY.

A Swiss correspondent in a recent issue of the *Lancet* describes a recent visit made by a party of Italian and Swiss Red Cross physicians to German military hospitals along the western battle front, and at Berlin, Brussels, St. Quentin and Sedan. Professor Baldo Rossi speaks with enthusiasm of the efficiency of the German army medical service as witnessed on this occasion.

"The organization of the German medical service is simply wonderful. Nothing seems to have been left to chance, but, on the contrary, every detail seems to have been thought out carefully. At Berlin a large number of public and private buildings — theatres, cinematograph houses, police stations—have been handed over to the Army Medical Department, while various types of hospitals are situated at different points along the main roads which link up the capital to the fighting line. The wounded are not removed from the trenches until evening, as there is the danger of transports being attacked in the daytime by the enemy. Medical assistance is, of course, rendered immediately, and the German trenches, moreover, are not uncomfortable places. At dusk ambulances drawn by horses reach the trenches and the wounded are transferred into them. Horse ambulances are used because the roads are frequently too difficult for automobiles, and because, even were the latter used, the noise of the motors and the glare of the headlights would attract the enemy. The wounded are first taken to the medical stations situated about five miles in the rear of the trenches, each of which is under the supervision of nine doctors, of whom three are surgeons and one an oculist. These medical stations have been carefully selected and contain operating tables, instruments of the most expensive and intricate kinds, and all drugs that might be required. Many of the beds in use are curious, and offer testimony to the practical nature of the Germans. The number of wounded proved so much greater than had been anticipated that the ambulance men were compelled to make beds to the number of many thousands from the boxes and cases which had contained food for the troops."

Of the nature of the wounds and their treatment Dr. Rossi speaks as follows:—

"Most of them are caused by cannon projectiles, whereas in preceding wars injuries were mainly due to rifle fire. Wounds in the head are numerous, owing to the trench fighting, which is the chief characteristic of the campaign. Instances of 'frozen feet' are not frequent, one reason being that the German soldiers wear very high boots. Amputation, practised so largely in previous wars, is now reserved by the Germans for desperate cases, so that at the end of the present war, vast and terrible though it is, mutilated men will not be very numerous."

At Brussels the visitors attended a conference of German medical officers for the discussion of the public health problems of Belgium and the efficient reorganization and administration of local public hygiene and sanitation.

SOME ANTI-VACCINATION ARGUMENTS.

At a recent meeting of the American Anti-vaccination League in favor of the bill (House No. 886) then pending before the Massachusetts General Court, but since fortunately defeated, the following statements were made by some of those present in opposition to vaccination. These statements seem of interest as examples of the type of argument against which the medical profession must contend in its effort to maintain the advancement of science for the benefit of the public.

"I object to the practice of vaccination because it does not, in my belief, act as an effective preventive. The insistence upon revaccination tends to corroborate this doubt. But waiving the question of degree of protection afforded by vaccination, and assuming it to be relatively innocuous, I protest vigorously against the invasion of individual rights caused by the official operation of a compulsory law.

"Some superstitions die hard, and I can only say to the compulsory vaccinators that I shall welcome the general injection of vaccine only when they succeed in procuring it from the cow that jumped over the moon."

"The meeting was called in the hope of strengthening our forces against our enemy. Our enemy in the present instance is medical tyranny, the tyranny of the political doctor, the members of the American Medical Association, which is the greatest menace this country has today. We are here to protest against the compulsory poisoning of the blood stream of our healthy children in the absurd hope of protecting them against some disease in the future to which there is every reason to believe they will never be exposed.

"If Massachusetts through an unjust law, passed many years ago in ignorance, or through undue influence of a privileged class, has caused the death or life-long injury of one single child, isn't that sufficient reason for the repeal of the compulsory vaccination law? After sixty years of compulsory vaccination, the number of chil-

dren killed or permanently injured is well up in the thousands.

"For years past over two-thirds of all those who have succumbed to smallpox had been vaccinated. Where there is most vaccination there also is most smallpox; where there is least vaccination and good sanitation, there is the least smallpox, and the lowest general death-rate."

MEMORIAL RESOLUTIONS.

HENRY WALTON WOOD, M.D.

AT a meeting of the Boston Society of Psychiatry and Neurology held April 15, 1915, the following memorial was read:—

By the death of Dr. Henry Walton Wood the Boston Society of Psychiatry and Neurology loses one of its younger members. Through his personality and capacity he had already established an enviable position for himself in the general practice of medicine. His previous training and natural inclination, however, led him into the special study of psychiatry, a field in which his preliminary work gave promise of substantial accomplishment. His opinion on matters relating to the nervous system was increasingly sought by his colleagues and by the courts.

The Boston Society of Psychiatry and Neurology desires to express to his widow and family its sympathy at his untimely death and to cause this tribute to his memory to be spread upon its records and to be published in the BOSTON MEDICAL AND SURGICAL JOURNAL.

J. W. COURTNEY, M.D.
E. W. TAYLOR, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING APRIL 17, 1915.

CONTRIBUTIONS.

Fort Wayne Medical Soc., Fort Wayne, Ind.	$ 25.00
Ramsey County Medical Soc., St. Paul, Minn.	25.00
The New Castle Physicians Club, New Castle, Pa.	10.00
The Harrison Co. Med. Soc., Gulfport, Miss.	25.00
The Cumberland Co. Med. Soc., Portland, Me.	25.00
The Waterbury Medical Association, Waterbury, Conn.	13.00
Dr. William T. Hamilton, Philadelphia, Pa.	5.00
Dr. Charles Alfred Dukes, Oakland, Cal.	5.00
Dr. P. St. L. Moncure, Norfolk, Va.	5.00
Dr. R. T. Stratton, Oakland, Cal.	5.00
Dr. R. J. E. Scott, New York, N. Y.	5.00
Dr. W. C. Cahall, Germantown, Pa.	2.75
Dr. Richard Dewey, Wauwatosa, Wis.	10.00
Dr. E. H. Ruediger, Manila, P. I.	10.00
Dr. Lucretius H. Ross, Bennington, Vt.	10.00
Mr. A. W. Burnham, Pittsburg, Pa.	5.00
Receipts for week ending April 17,	$ 185.75
Previously reported receipts	6138.75
Total receipts	$6324.50

Disbursements for week ending April 17:	
80 standard boxes of food @ $2.30	$ 184.00
Previously reported disbursements:	
1625 standard boxes of food @ $2.20	3575.00
1114 standard boxes of food @ $2.30	2562.20
Total disbursements	$6321.20
Balance	$3.30

F. F. SIMPSON, M.D., *Treasurer*,
7048 Jenkins Arcade Buildg.,
Pittsburg, Pa.

The following letter from the Pittsburg branch of Messrs. Marwick, Mitchell, Peat & Company has just reached the hands of the Treasurer.

PITTSBURG, PA., March 26, 1915.

DR. FRANKLIN H. MARTIN, *Chairman*,
Committee of American Physicians for
the Aid of the Belgian Profession,
Chicago, Ill.

Dear Sir:

We have audited the accounts of the "Committee of American Physicians for the Aid of the Belgian Profession" for the quarter ended March 20, 1915.

WE HEREBY CERTIFY that all donations received have been properly accounted for and applied to the purchase of provisions and that the following is a correct summary of the Receipts and Disbursements for the period:

Receipts	$5221.50
Disbursements:	
1625 boxes of food	3575.00
Balance on deposit in Union Trust Company, Pittsburg, Pa.	$1646.50

All but nine of the boxes of food had been delivered at the Bush Terminal, South Brooklyn, New York, to "The Commission for Relief in Belgium" as at the date of our audit, and in addition 715 boxes have been ordered, bringing the total of the boxes up to 2340. The foregoing bank balance will be used to pay for the 715 boxes on order.

Yours truly,
(Signed) MARWICK, MITCHELL, PEAT & CO.

AID FOR BELGIAN PHYSICIANS.

It has been difficult to get definite information regarding the exact destination of food and supply boxes sent into Belgium. A recent letter from Dr. S. Squire Spriggs, Hon. Sec'y of the Relief Fund for Belgian Doctors and Pharmacists, gives the following information:

"The boxes of drugs, instruments, and dressings duly reached Brussels and were there distributed to the place where they were most needed by the Aide et Protection aux Médecins et Pharmaciens."

The latter is a Committee of Belgians formed to consider the condition of the doctors and pharmacists. It is a respresentative body and has organized machinery for ascertaining where the need is greatest among those whom it would help and providing sys-

tematic relief. Forms have been issued to all the doctors and pharmacists in Belgium on which they are asked to state frankly their positions and that of their families, the loss they have sustained and the estimated amount of money to enable them to tide over their existing terrible circumstances. On these points the Committee has acted in consultation with the local medical societies throughout Belgium and with the Government Inspectors of Pharmacy. Small amounts of money have been distributed in this way and the better circumstanced doctors and pharmacists of the larger cities of Belgium have contributed to this fund. Originally this Committee had a subsidy from the National Relief Fund but this is now exhausted. The British Committee have investigated this work and are advising now that help in money should be sent.

DR. J. RIDDLE GOFFE,
New York.

RED CROSS RELIEF.

The American Red Cross shipped to England on the American liner *St. Paul* on April 24, a $10,000 consignment of hospital and medical supplies to the British Red Cross. The consignment included 11,000 pounds of absorbent cotton, tetanus antitoxin, and thousands of hospital garments. On the Russian-American liner *Kursk*, which sailed on April 27, the Red Cross shipped a $21,000 consignment to the Russian Red Cross at Petrograd. The consignment consisted of hospital garments, hospital supplies and miscellaneous clothing.

On the Italian liner *San Giovanni*, which sailed on April 24, the Red Cross made its first shipment to the Montenegrin Red Cross at Cettinje. The consignment included 1100 pounds of absorbent cotton, a large quantity of hospital supplies, and clothing for destitute women and children.

The first shipment of comfort kits for the convalescent soldiers of France was sent on April 24 on the French line steamship *Rochambeau*. There will be some 2000 of these kits forwarded by the Lafayette fund, which has been engaged during the past winter in sending kits to the French soldiers in the trenches.

APPOINTMENTS.

Dr. Charles P. Bancroft of Concord, N. H., was, on April 15, reappointed superintendent of the New Hampshire State Hospital.

Dr. Edmund Winfred Wilson was, on April 16, appointed assistant superintendent of the Boston City Hospital.

On April 19 the corporation of Yale University appointed *Dr. Charles Edward Amory Winslow* of Boston as professor of public health in the Yale Medical School on the Anna M. R. Lauder Foundation. Dr. Winslow has served as assistant health officer of Montclair, N. J., as member of the Massachusetts State Board of Health, as assistant professor of sanitary biology at the Massachusetts Institute of Technology, as associate professor of biology in the College of the City of New York and as head of the division of publicity and education of the New York State Department of Public Health.

Dr. Harold B. Myers of Portland, Me., has been appointed professor of materia medica and pharmacology and *Dr. Howard D. Haskins* of Cleveland, professor of physiologic chemistry at the University of Oregon.

Dr. H. Roy Dean, who since 1912 has been professor of pathology at the University of Sheffield, England, has been appointed professor of pathology and pathological anatomy at the University of Manchester.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to The Massachusetts Medical Society at 8 The Fenway, on Thursday, May 13, 1915, at 2 P.M.

Candidates, who must be residents of the Suffolk District, or non-residents of Massachusetts, should make personal application to the Secretary, and present their medical diplomas, at least three days before the examination.

For further particulars, apply between 2 and 3 P.M. to

WALTER C. HOWE, M.D., *Secretary*,
303 Beacon Street.

SOCIETY NOTICE.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-eighth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, April 30, 1915, at 8.15 P.M.

The following papers will be read:

1. "Can the Speech Present a Sign of Congenital Syphilis?" W. B. Swift, M.D., Boston.

2. "Acute Otitis Media in Childhood; Avoidable Mistakes in Diagnosis, Prevention, Treatment." W. R. P. Emerson, M.D., Boston.

3. "Studies in Bronchial Glands." W. W. Howell, M.D., Boston.

4. "Endocarditis in Children; Its Prophylaxis and Treatment in an Out-Patient Department." R. S. Eustis, M.D., Boston.

Light refreshments will be served after the meeting.

E. M. BUCKINGHAM, M.D., *President*.
RICHARD M. SMITH, M.D., *Secretary*.

RECENT DEATH.

DR. A. A. W. HUBRECHT, professor of embryology at the University of Utrecht, Netherlands, died on March 21 at the age of 63 years.

BOOKS AND PAMPHLETS RECEIVED.

General Index to the Annals of Surgery. Vols. 51 to 60, 1910-1914.

Psychology and Parenthood, by H. Addington Bruce. Dodd, Mead & Co., 1915.

A Case of Chronic Lymphoid Leukemia with Much Temporary Benefit from Benzol Treatment, by H. D. Rolleston, M.D., and J. D. Rolleston, M.D. Reprint.

A Practical Treatise on Diseases of the Skin, by Oliver S. Ormsby, M.D. Lea & Febiger, 1915.

The Practical Medicine Series. Vol. 1. General Medicine, by Frank Billings, M.D., and J. H. Salisbury, M.D. Series 1915. The Year Book Publishers.

Dementia Precox Studies. The Case for Dementia Precox as a Pluriglandular Disease, by Bayard Holmes, M.D. Chicago. Reprint.